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NEW YORK SATURDAY, JULY 5, 1902 CHICAGO

WHILE it may seem strange at first thought, it is the small rather than

the large user of automobiles who has set the initiative in the development of the specially built and equipped automobile stable. The users of large and expensive automobiles and those who have numerous motor carriages of various patterns might be expected to be the ones to first build spe-

The Private Automobile Stable

sons who still maintain horse equipages as well as automobiles.

The small cities, country places and towns throughout the country are without the storage station facilities. Automobilists in such localities naturally provide for themselves the necessary accommodations for the hous-

number of machines. This need is being rapidly met. There are enough of such

buildings now in use to show that they will multiply in number in a fair ratio to the increase in the use of automobiles. They may become a prominent factor in automobiling before the development of the more elaborate and spacious large city or country seat automobile stable is well started.



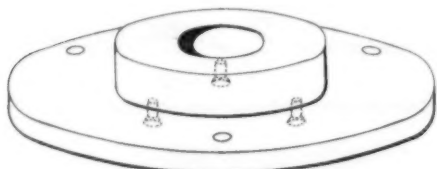
EXTERIOR VIEW OF DR. CARMAN'S STABLE AND INTERIOR VIEW SHOWING VEHICLE ON TURNTABLE

cial houses for their machines. This class of users, however, is of the large city, and the large city has public storage station facilities and private horse carriage houses of first-class character. There has accordingly been no immediate need for the erection of exclusive motor carriage houses by such users, especially as many of them are per-

ing and care of their machines. The horse carriage houses are not so well adapted to the accommodation of the motor vehicles as are some of the larger city stables, and also many of the automobilists are not present users of horses. There is an immediate need for specially built small automobile stables capable of housing one or a small

A typical example of the small, especially designed and equipped automobile house is furnished by the first illustration, showing exterior and interior views. This is a building in which no attempt has been made to secure more than a neat, tasteful exterior appearance; in the erection of which only \$300 were expended, and yet which fur-

nishes just as much room and just about the same facilities for the care of the steam surrey kept in it as would the more pretentious stable built to house a greater number of vehicles. It is a graphic demonstration of the fact that the essentials in an automobile house are not expensive, and that increased cost principally means increased size and greater architectural merit. It also includes a convenience for handling the



Central Bearing Block for Turntable

automobile which would have as much if not a greater utility in a larger private or a public storage station—another point indicating the rapid development of the modest stable.

Interior Arrangement

The house illustrated was built by Dr. M. A. Carman at Plainfield, N. J. It is 14x24 ft. and high enough to provide a half story under the roof, which can be used for storage or fitted up as a man's room. It is well and substantially built, despite its seemingly low cost. The main floor is in one room whose most noticeable features are a work bench, a pit and a turntable. The work bench is a common necessity; the pit is a common convenience, while the turntable is a novelty.

This distinctive feature of the building occupies the central floor space immediately inside of the wide end doorway. It is 9 ft. in diameter and, as shown in the illustration, comfortably accommodates the steam surrey. At the left end of this turntable is the bench, and at its rear, in the lateral center of the floor is the pit. This is about 2½x3 ft. in size and is provided with a removable covering which, when in place, is even with the floor.

Advantages of Turntable

With the turntable the vehicle can be readily and easily turned in any direction and always be in close proximity to the work bench, which is an obvious convenience for repairing. Should work be necessary underneath the machine the turntable has only to be turned so that the machine is in line with the pit and it can then be run partly off of the table, bringing it directly over the pit. Its great convenience in the

Dr. Carman has found it to sustain in practice its theoretical "talking points" and those who have seen it have so greatly appreciated its merits that several automobilists have already expressed their determination to install duplicates of it. The greater usefulness of such a feature in an automobile house than in a common carriage house is readily appreciated upon consideration of the much greater weight of the automobile compared with the horse carriage. Its value is also of an economical nature, as it allows a much smaller storage floor space than when the vehicle or vehicles have to be turned around on the floor.

Such a turntable can be constructed in several ways. That adopted by Dr. Carman is simple, substantial and probably as satisfactory as any. It is shown in the accompanying cross section of the table. The table floor is unframed, being made of two layers of 1¼-in. spruce boards laid in cross directions. To the bottom of this is fastened a series of sixteen 1¼-in. Acme ball casters equally spaced around a circle substantially 7 ft. in diameter, and, of course, concentric with the turntable. The ball casters run on a track composed of two semi-circular strips of ¼x2-in. flat iron, solidly seated. This revolving platform is maintained on its correct center by a centrally disposed thrust bearing which comprises an 1¼-in. ball between two semi-spherical seats.

Simple Construction

The method adopted for the construction of the central bearing seats is novel. One of these is here illustrated. A large washer comprises the bed plates. Each plate was pierced by three equally spaced holes near the center and counter sunk on the under or back face. A ring of plaster paris was then built up on the upper front face of the plate, it being of sufficient inside diameter to encompass the three counter sunk holes. It was then filled with molten babbit metal. The bearing ball was held over a burning match until thoroughly coated with carbon and was then pressed for nearly half its diameter into the babbit metal, forming a smooth semi-spherical seat. The carbon coat on the surface of the ball prevented it from sticking to the metal.

The babbit metal having run through the counter sunk holes, the bearing block thus formed on the plate needed no fastening after the removal of the plaster-paris moulding ring. The bed plates of these bearing blocks were secured in position by screws through holes near the edge. In

No drained washing floor is provided in this stable, as its owner does not wish his vehicle washed with a hose, the more careful exclusive wiping process being preferred. At present there is no interior water supply, but it is the intention to add this, as it would greatly facilitate the filling of the steam boiler supply tank. The gasoline is kept in an outside above-ground tight iron tank of the kind used by the Standard Oil Co. The fuel is drawn from this through a lock faucet. The work bench is furnished with all the common tools for ordinary repairing and work about the machine.

Remodeled Horse Stable

The other automobile stable here illustrated, that of Mr. Chapin at Rockville Center, L. I., is a typical example of remodeled suburban stable. Mr. Chapin having both horses and automobiles, the house was remodeled to accommodate both. The carriage house proper was enlarged to accommodate more vehicles. The horse stalls are in an end extension of the main building.

The main floor of the remodeled house afforded ample space for the storage of four vehicles as well as for their handling and care. The two automobiles were a surrey and a runabout. These were placed at the left end of the room where several windows afforded good light for working upon the machines. At the left of the wide front doorway a work bench was built while directly inside the door was placed a large washing stand. This location for the washing floor was chosen that a vehicle might be cleaned as soon as run into the house, and then pushed back to its storage position, ready for use.

A non-freezing water hydrant was inserted at the right of the entrance and in the corner of the stairway leading to the second floor. The stable stands about 100 ft. back from the street and at one side of the driveway leading to it a standard pattern Gilbert and Barker underground gasoline tank was sunk. In the construction of the washing stand no piping was necessary. The building being over sandy soil, a conical pit was dug underneath the stand, and this formed a natural drain for the water.

Cost of Equipment

The enlargement of the stable was made at an expense of \$265; the insertion of the water hydrant, including the tapping of the main, cost \$25; the cost of the washing stand was \$25, and the gasoline tank



SECTIONAL VIEW OF TURNTABLE

general handling of the machine is apparent. Even if used only for turning the vehicle around when running in or out of the house it would be worth its comparatively small cost of installation.

placing this bearing in position it was found that the best running results were obtained by placing it a trifle higher than the weight sustaining balls on the circular track. The total cost of the turntable was \$40.

and its installation cost \$30—making a total cost of \$345 for remodeling the stable. Last year the bill for fuel, oil and repairs for 4,100 miles of travel was \$37.50, while the portion of service in caring for the ma-

chines rendered by the man employed to do general work averaged about \$5 per month.

Value of Small Stables

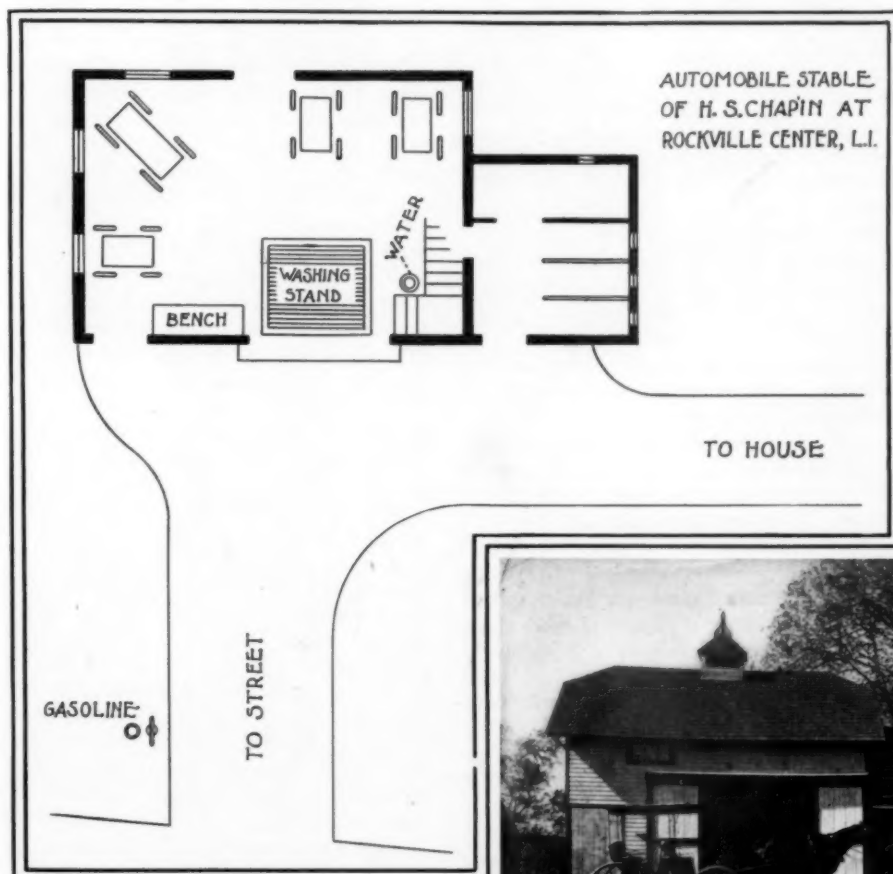
Just as in the large city the progress of the storage station assists the sale of automobiles, so the erection of special automobile stables in localities where the owners have room for them helps to advance the use of motor carriages by demonstrating the automobile's advantages in maintenance as well as in use.

being properly cleaned. The mud is allowed to dry on the paint and leave spots, instead of being washed off immediately the car has returned to the coach house. The motor gets coated with grease and dust, and the car rapidly puts on a dirty and second-hand appearance. There are others who take a pride in their cars, which, after running many thousands of miles, look almost as well as they did the day they were turned out.

or leathers should be used for the motor and the gearing, these parts being finished last, care being taken that no grit or dust be wiped into the bearings. It is almost needless to add that all lubricators, tanks, etc., should be closed during cleaning operations.

A little paraffin oil on the cloths used in cleaning the engine greatly facilitates the removal of any grease. To clean the side chains use the same oil, well brushed in with a common paint brush. After having removed all the dirt and water from the car, wipe the bright parts with a rag having a little vaseline on it, and give the side chains a coating of tallow and blacklead, which can be kept ready mixed, and applied with a brush like that used for cleaning.

All dirt should be washed off the tires, and having dried them carefully, cuts and bad places should be cleaned out with benzine or petrol, and then plugged and cemented with pieces of pure rubber and solution, so that they may be allowed as much time as possible to harden before being again used. On no account should a deflated tire be allowed to support the weight of the car. If it is not convenient to repair the tire at once, the weight of the car should be taken off it by a jack or other support. There is nothing worse for tires than to



For instance, Dr. Carman's stable, at a cost of \$300, thoroughly provides for the care of a steam surrey. An equally well-built stable for a horse-drawn surrey, with stalls for two horses, and with accommodations for a good supply of grain, hay and straw, would be more than twice as large and cost at least twice as much.

Thus with the initial stable and subsequent stabling cost much less than that for an equivalent horse-drawn equipment, and with its cost of operation also below that of the horse outfit, the original cost of the automobile will not have to be greatly lessened to make it in fact the cheaper conveyance of the two.

THE CLEANING OF VEHICLES

Owing to the careless way in which many motor cars are treated, they have become associated with the idea that they are necessarily dirty, and only fit for those who wish to go tearing around the country. Many owners fail to recognize that their cars are depreciating very rapidly in value by not

To remove dust from the paintwork, a large common painter's brush is as good as anything; but in muddy weather, a soft sponge with plenty of water should be used. The sponge should be plunged frequently into the water and "dabbed" on the mud; do not attempt to wipe it off, as this will scratch the varnish. When every vestige of dust has been removed, the car may be wiped down with a soft chamois leather. Neither the brush, sponge or leather should touch any greasy part or they will spoil the gloss of the varnish. Separate cloths

allow them to stand on greasy patches. As it is almost impossible to prevent oil dropping on the floor, it is best to get a sheet-iron tray, about 5 ft. long by 3 ft. wide, having sides about 1 in. high, and slide this underneath the car as soon as it is brought in.

To describe in detail the best method of cleaning a car doubtless gives an impression that it takes a great deal of time, more than most people could devote to the work, but it is surprising how quickly a motor car can be cleaned.



The Gasoline Vehicle

III. THE MECHANICAL PROBLEMS OF HIGH-SPEED MOTORS *

In the two preceding articles it was shown that the first essential of a high-speed explosion motor is rapid and perfect combustion, and the second is as nearly perfect a balance of moving parts as practicable. Several modes of obtaining this balance were indicated, and it was stated that high compression and early ignition were two factors in securing quick combustion. The limitations on early ignition are obvious enough. Those on high compression, though not quite so evident, are equally real.

Limits of Compression

To ignite an explosive mixture, as to burn it, both heat and pressure are needed. But while pressure is more important than heat for quick combustion, the contrary is true of ignition. If heat enough—the heat of a flame, of an electric spark or of a metal surface heated to redness—be supplied, the pressure may be no more than that of the atmosphere. If the pressure be doubled, trebled or quadrupled, the heat required is correspondingly less. A charge may be fired spontaneously by the heat of its own compression, if the compression be carried high enough; or some point in the cylinder—an overheated electrode, a projecting metal corner, an unjacketed head, or a bit of carbon deposit in the path of the exhaust gases—may become hot enough to ignite the charge at some stage of its compression. This is the first practical limit to high compression, and, naturally, it will be encountered early or late in the process of pressure increase, according to the skill and foresight of the designer. When a high-speed motor is in question, every effort should be used to avoid this local overheating so that a high compression and rapid inflammation will be possible.

On economic grounds, also, the compression should be high enough to give a sharp combustion line without too rapid a fall, because the higher the combustion-temperature can be made (within the limits mentioned) the higher will be the thermodynamic efficiency of the resulting conversion of heat into work. In theory, and supposing combustion to be instantaneous in each case, this principle holds good of every heat engine, large or small. In practice, it is easy to give a slow-speed engine too rapid combustion, and difficult to make it rapid enough for the high-speed engine.

But there are less recondite drawbacks to extreme compression, and before resort-

ing to it every effort should be made, by improving the quality of the mixture, to secure rapid flame propagation from molecule to molecule without having recourse to adventitious aid. This point will be taken up again in a subsequent article on the carbureter; meanwhile, we may note that high compression, in so far as it implies also high explosion pressure, implies also severe working strains and a need for stanch construction; that the high temperatures render the piston head, valves and piston rings liable to more rapid deterioration, and that a leak in valves or rings is more wasteful and troublesome with high than with low compression.

In point of fact, however, these various ailments are by no means so formidable as they sound, as is attested by the fact that, except for slow-speed motors, high compressions—from 75 to 100 lbs. absolute—are now very generally used.

Constructional Features

The mechanical points, other than balancing, which must be looked after when high speed is attempted, are mainly those of cylinder cooling, of wear and lubrication, of valve and port design and of properly proportioning the reciprocating parts. The first of these is closely connected with high compression, and can be met only by ample water spaces, careful avoidance of inwardly-projecting corners or edges in the combustion spaces, and a copious flow of water through the jacket. It is hardly too much to say that forced circulation is a corollary of the high-speed motor. The exhaust valve chamber and seat must be carefully water-jacketed, else unequal expansion of the metal will cause the valve to leak, if, indeed, the cast-iron itself does not crack. The exhaust valve itself, which is necessarily of large size to avoid throttling the gases, is best made of a special nickel steel having about 35 per cent. nickel. Ordinary steel will burn and scale at the temperature to which it is subjected, making it impossible to keep a surface on the valve seat. For slow speed engines cast-iron makes a very satisfactory exhaust valve head, but it is impracticable for high speeds. The relation of valve design to speed is a subject in itself, and will be taken up in detail next week.

Bearings and Lubrication

High shaft speeds imply rapid wear, and the bearings of all fast-running motors are exaggerated much beyond what is found necessary with slower motors. The highest grades of steel and bearing metal are requisite; and where, as in bicycle and other small motors, it is important to

economize ounces, French makers case-harden the shaft and use case-hardened iron bushings, giving a very small but very durable bearing. Lubrication is another vital point, and with the inclosed crank-cases now coming into general use the accepted method of oiling all the shaft bearings is to provide oil pockets over them, inside the crank-case, which are filled with waste and catch the oil dashed about by the cranks. The splashing lubricates also the crankpin bearings, suitable provision being made in the large ends of the connecting-rod to this end; and latterly the exhaust valve gear also is so arranged as to receive the same lubrication. Small motors, especially single-cylinder motors, are often made so that the piston also is lubricated by the splash in the crank-case. Indeed, the trouble in most cases is not to get oil enough up to the piston, but to prevent it from being thrown on the cylinder walls in such copious quantities as to work past the piston, by capillary action, a great deal faster than it can be used, and foul the valves and sparking points, short-circuiting the latter and causing the former to gum. This is prevented usually by putting a diaphragm across the lower end of the cylinder, with a slot for the connecting-rod to pass through. Where possible, this diaphragm is cast integral with the crank-case. Then the oil gets up only through the slot.

In larger motors the pistons are generally lubricated with cylinder oil, which will stand a higher temperature than crank-case oil, and which leaves less solid residuum when burned. In French motors this oil is fed by mechanical lubricators, in the shape of miniature pumps, with as many plungers as there are pistons, and driven at slow speed from the engine shaft. Less elaborate, but less positive, methods are commonly employed in this country, the sight-feed pressure oil cup being one of the commonest. Whatever the method of feeding, the oil is introduced through the wall of the cylinder, against which the angular thrust comes at a point just above that reached by the edge of the piston rim at the bottom of the stroke and just below the piston's top, the piston being a little longer than the stroke.

Light Reciprocating Parts

It is often supposed that, owing to the alternate push and pull of the connecting-rod on the piston, the slightest wear in the shaft or crankpin bearings of the four-cycle motor must result in "knocking" at these points. As a matter of fact, if a motor be rightly designed and rightly managed, it may run with an excessive amount of lost motion—a sixteenth of an inch or more—on the crankpin, and with the main bearings very loose on the shaft. The weight of the flywheel and shaft will usually keep the latter steady, while a reference to what was said last week about the direction of the piston's inertia forces will show that, compounding these with the downward pressures of compression and explosion, there

* The series on "The Gasoline Vehicle" was begun in the issue of June 7. Although treating of a common subject, the several articles will be self-contained, so that any of them may be read without reference to others of the series.

is less than half of a revolution out of the two making a cycle, during which the net force acting on the connecting-rod has an upward direction—namely, from near midway of the exhaust to near midway of the

to 60 lbs., which is sufficient to start on, in a minute and a half.

The engine has two cylinders, with link reversing gear, and will develop 30-i.h.p. For propulsion it is disconnected from the

bottom of its stroke, in which position the pump rods are connected to the crosshead by means of screw sleeves.

Oil to the amount of 30 gallons is carried in tanks under the driver's seat, an air pump worked from the engine crosshead supplying pressure. A band brake works on the countershaft, and screw rim brakes are also provided.

The construction is said to be, and doubtless is, very workmanlike and substantial, but we question if the crude method of connecting the crosshead to the pump would commend itself to the fire chief of an American city.

THE GERMAN SHOW

Report by U. S. Consul Frank H. Mason at Berlin, of the Recent Show in That City.

The annual Pan-German motor-carriage exposition was opened at Berlin on the 15th and closed on the 26th of May. As its title implies, this was not in any sense an international competition, like that of three years ago, but simply a friendly display by the Union of German Motor-Carriage Manufacturers, under the joint auspices of the German Automobile Club and the Middle European Motor-Wagon Association, which collectively includes most persons and firms in Germany who are interested in one way or another in the subject of automobiles.



NEW 16 H.-P. NAPIER GASOLINE LORRY

suction stroke. The only condition necessary is that the combined inertia of piston, pin and rod shall always be less than the compression pressure, so that there shall not be an abrupt reversal of forces when the explosion comes. Even with a clumsily designed piston, if the mixture burns sluggishly enough to permit ignition to take place before the inertia has begun to exceed the compression pressure, the rising combustion pressure will still hold the piston and rod down on the crankpin. When the reversal does take place, during the exhaust and suction strokes, the forces themselves are at a minimum, and there is little or no perceptible shock.

THE "MOTOR FIRE-KING"

The illustration on this page, from *The Automotor Journal*, shows the latest of several motor fire engines turned out by Merryweather & Sons, London, who are well known in England for their horse-drawn engines. It is substantially similar to the ordinary machines by the same firm, except for the addition of transmission from the engine to the rear wheels. The vertical water-tube boiler is similar to the regular type, with a central nest of nearly horizontal tubes flanked by vertical tubes two deep on two opposite sides. The tubes are surrounded on all four sides by thin water spaces, and a liberal water and steam space surrounds the stack in the center. This particular boiler is fired by oil, sprayed by a steam jet. When standing in the station a low pressure, about 20 lbs., is maintained by a removable gas burner, and this is pulled out and the oil burner started on receiving an alarm. *The Automotor Journal*, from which the cut is taken, states that the oil burner will raise steam from 20 lbs. up

pumps, and a sliding spur pinion on an extension of the crank shaft is shifted by a hand lever to mesh with a gear on the differential case in the countershaft. Heavy chains then transmit motion to the rear



AN ENGLISH MOTOR FIRE-ENGINE

wheels in the usual manner. In this condition the engine is ready to respond to an alarm. When arrived at the scene of action the pinion on the crank shaft is shifted out of gear and the crosshead lowered to the

Concisely stated, it has been a mechanical display, in which each manufacturer exhibited to his colleagues, patrons and competitors the best that he has thus far accomplished, including, naturally, such im-

provements as have been made since the international exposition which was held here in September, 1899. The exhibition of this year has been somewhat inadequately housed in the premises of the Permanent

riages—Benz, Opal, Dürkopp, Daimler, Kühlstein, the factories of Eisenach, Leipzig, Nuremberg and Marienfelde—were represented by their latest and best work, and the display included about 80 vehicles

the motor, inclosed in a dust-proof sheath, rests upon and is geared directly to the rear axle of the carriage.

The Line of Improvement

The dominant note of this exposition has been the evidence everywhere made manifest of a general and notable improvement in many details, not only in the construction of motor carriages, but in the many fixtures connected with their use for pleasure, sporting or business purposes. Three years ago few of the carriages exhibited were provided with ball bearings; now they are universal and of unsurpassed quality. The puffing, noise and vibration formerly so disagreeably incident to all hydrocarbon motors, although not yet overcome, has been greatly reduced by the inventions of the past three years. The same improvement is noticeable in pneumatic tires, in the greater lightness and beauty of wheel construction, in which slender metallic hubs with ball bearings, light but strong wooden spokes and improved methods of fastening and removing tire mantles, have been utilized.

The whole subject of electrical igniters for gas and spirit motors has made great progress in Germany during recent years, and the exhibition included several kinds which furnish an effective and reliable spark with a minimum consumption of current. Some of these are fed from storage batteries; in other cases the current is generated by a Rumkorff coil or a small dynamo carried in the automobile and driven from the axle. Among many improved fixtures were a set of reservoirs in which benzine can be kept with the greatest measure of safety, the tank of a motor carriage filled by a device which registers automatically the amount of fluid taken and indicates by a dial at any moment the quantity remaining in the tank. This system is a check upon the tendency of some chauffeurs to overcharge their employers for gasoline consumed.

AN AMATEUR-BUILT CAR

A. H. Bliss and his son, F. H. Bliss, both of Attleboro, Mass., and members of the Rhode Island Automobile Club, have just completed a 12-h.p. touring car that was built after original designs, and differs from any other vehicle on the market. The motor is a two-cylinder engine, made by E. F. Scholtz. The carriage has a detachable tonneau body. The motor is at the front, and transmission is by bevel gears instead of chain. There are three speeds forward and one reverse.

BRITISH TIRE TESTS

The Automobile Club of Great Britain and Ireland has had under consideration for some time a road test of pneumatic tires, and a special committee has been at work on the conditions. This committee, which includes Lieut.-Col. Holden, R. A., F. R. S.; Lieut.-Col. Crompton, C. B.; Mr. E. S. Hutton, Mr. Staplee Firth and Mr. Claude Johnson, club secretary, has given careful



ELECTRIC PATROL WAGON IN USE IN HARTFORD, CONN.

Motor-Carriage Association—a series of low-arched showrooms under the elevated railway viaduct on Georgen Strasse. The location is central, but surrounded by narrow and crowded streets, and the rooms are so small that the open court, which is ordinarily used for showing motor carriages in motion, had to be roofed with canvas to provide sufficient space to receive the various exhibits.

Nowhere during the recent competition has there been any space for testing, speeding or showing any of the machines in action, except to take them out through crowded streets to the parks or suburbs, where they remained subject to the very strict police regulations which govern the use of motor carriages in all Prussian cities. For this, among other reasons, the exposition just closed, while highly interesting to automobile makers and other experts in construction, has been lacking in interest as a popular entertainment. So far as could be judged by the attendance, the general public took but a languid interest in the display, and nine out of every ten persons to be met there were either owners of some kind of motor carriage or technically interested in their manufacture.

Exhibitors and Vehicles

The list of exhibitors includes 105 firms, all German except two, one of which is a maker of springs and axles at Paris and the other a manufacturer of small fixtures at Budapest. The United States was represented by one article—a polishing powder for metals—exhibited by the American Trading Company, of Berlin. All the great German manufacturers of motor car-

riages of every type, from the ponderous 12-ton freight wagon or 8-seated "tonneau" to the motor bicycle, of which latter there was a large and interesting display from not less than 7 different manufacturers.

It required but a glance through the rooms to show that the leading German builders have made great progress in automobile construction since 1899. Not only are the carriages in general lighter, more shapely and elegant in outward finish, but they conform more closely in model and relation of parts to modern standards of construction, as typified by the leading French machines. For reasons which will be hereinafter explained, steam carriages formed no part of the display. Electric automobiles were there, but so few in number and so unchanged from the types of three years ago as to form only a passive feature of the exposition, in which the gasoline and alcohol motors were supreme.

Motor-Front Predominates

Of the sixty or more vehicles on exhibition at least five-sixths were of the general type of the Mors and Panhard racing machines which are so well known in America—that is, with gasoline motors placed high in front, and transmitting the driving power either through chains or a longitudinal shaft and beveled gearing to the rear axle and wheels. Two makers—the Benz Motor Co., of Mannheim, and the Dietrich Co., of Niederbronn, in Alsace—still utilize their plan of power transmission from motor to driving wheels by means of a belt and pulleys. The one real novelty in this line is the device of Prof. Klingenberg, exhibited by the Motor Fabrik Pasig-Munich, in which

consideration to the matter, and has recommended the following conditions, the tests to take place some time next fall:

Distance.—3,000 miles; with option of extension at the judge's discretion.

Duration.—About 150 miles per day for five consecutive days in four consecutive weeks.

Route.—The route to begin and end each day at or near the club-house. The cars to be started simultaneously, and to run each day over the same route.

Control.—The cars to be stored under club supervision.

Speed.—Maximum speed as in Glasgow Trial. Minimum speed in open country, an average of twelve miles per hour. In ascending hills, if the road is clear, the maximum speed to be employed.

Observers.—On each car the owner is to provide two seats, one for the official observer and one for a competitors' observer. Official observers will exchange cars each day in rotation.

Competitors' Observer.—Every competitor shall appoint an observer, who shall travel on every competing car except the one entered by the firm he represents, and may lodge complaints as to the conduct of the trial with the official observer, provided that such complaint be made on the day of the incident and in writing.

Cars.—Competitors will provide the cars on which their tires are to be tried. Also drivers, and will pay the cost of, and will be responsible for the running of the same.

The cars must not weigh, with passengers when ready for the road, less than 30 cwt. They must be driven by internal-combustion engines of not less than 10-horse-power.

Record of Car.—The maker of the car shall be entitled to a report for publication of what stops, other than tire stops, were made on the journey of 3,000 miles, their duration, and cause.

Breakdown of Car.—If the car fails, the tires may be transferred to another car to be supplied by the competitor, provided that it complies with the conditions, and is forthcoming within two days of the failure.

The Tires.—(a) The tires shall fit wheels of 910 m.m. or 870 m.m., or if a maker does not make these sizes the committee may accept other sizes.

(b) The tires shall be the ordinary tires sold to the public, and shall be selected by the committee out of stock.

(c) Six outer covers shall be selected, of which four shall be run and two be in reserve in case of a tire being destroyed by a bad cut, etc.

(d) The sectional diameter of the tire shall be such as the maker may consider suitable for a car weighing, with load, etc., not less than 30 cwt.

(e) At the end of the trial the tires run shall become the property of the club in order that they may be cut for examination.

(f) Before the trial a section of a similar tire shall be supplied by the maker to the committee.

Entry Fee.—The entry fee to be £21 per set. No limit to the number of sets entered. Any balance of receipts over expenditure to be returned proportionately to competitors.

Judging to be effected by judges, the following being factors:

(a) One mark to be deducted for every minute spent in tire inflation or repair, whether in the control or on the road.

(b) Price of tires.

(c) Loss of weight.

(d) Condition as shown by periodical examination and by photographs taken during the trial and by examination at end of trial.

Judges.—The following with others are to be invited to act as judges:—Lieut.-Col. Holden, R. A., F. R. S., Capt. Lloyd, R. E., Captain Nugent, R. E., Professor Hele Shaw, LL. D., F. R. S.

Date.—The trial will take place during the first, second, third and fourth weeks of September. The runs in the first week will thus coincide with the runs of the big trial.

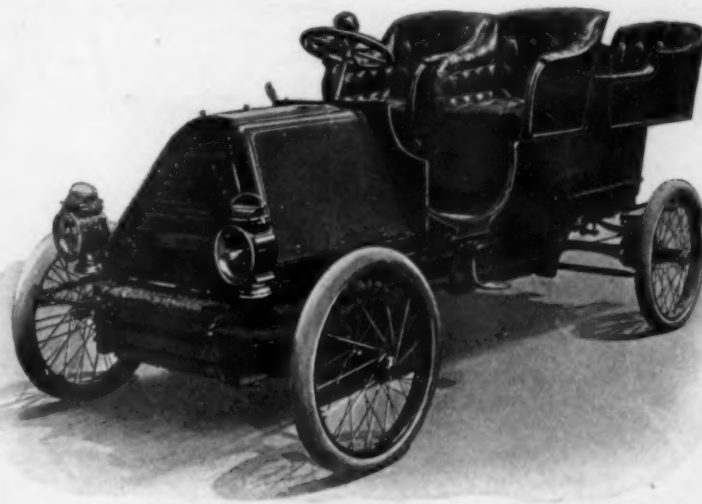
Mr. Alfred Harmsworth has offered, in connection with these trials, three prizes, amounting to £250, on behalf of the *Daily Mail*.

STEAM CARRIAGES IN PRUSSIA

In a report under date of June 26, a portion of which we publish elsewhere, U. S. Consul Frank H. Mason, of Berlin, writes as follows of steam street carriages in Prussia:

Under such general conditions as now exist, it was naturally thought that American steam carriages of the runabout type, which are cheap, easily managed and run without smell, noise or unpleasant vibration, would find a ready and appreciative market in Germany. One of these machines, built by the Locomobile Co. of America, was brought to Berlin in the winter of 1901, and attracted much favorable attention. But when the new code of automobile regula-

governing the construction and use of steam boilers. This elaborate and comprehensive statute was enacted on March 9, 1900, before the motor carriage had become a factor in transportation. It comprises 45 sections, which prescribe with minute and elaborate precision every detail in the construction and use of steam boilers. Having been made for stationary and locomotive engines, these specifications naturally could not be adapted, unchanged, to automobiles; and as a consequence the steam carriage, although licensed in Austria, Saxony and Bavaria, has been thus far practically excluded from Prussia. During the past six months, however, a movement has been organized and carried through by which the statute has been amended so as to permit the use of steam carriages which fulfill in their construction certain conditions. Under these revised conditions, the Locomobile has been granted a concession—not yet officially issued—to be sold and used throughout Germany upon condition that three trifling modifications shall be made in its construction. One of these requires that a certain tube shall be 15 instead of 10 millimeters in caliber; the second relates to the outer shell of the boiler; and the third requires the water-gauge cocks to be pierced in front, so that any stoppage from dirt or boiler scale can be detected and removed. With these slight and inexpensive changes, the Locomobile will be admitted to what is practically a virgin field for steam vehicles, and when converted—as it easily can be by a slight change in its gasoline burner, so as to adapt it to alcohol as a fuel—its success would seem practically assured. The whole influence of the German Government is directed toward the substitution of crude alcohol for petroleum products wherever possible, and makers of motor carriages and other machinery for this country should take that fact into account.



AMATEUR-BUILT TOURING GASOLINE CAR

tions went into effect in April, 1901, a special license became necessary, and it was found that the American Locomobile collided at eight points with the Prussian law

S. E. Gates, superintendent of the Automobile Transportation Co., of Porto Rico, is in New York for a brief visit, combining business with pleasure.



MARINE MOTOR DEPARTMENT

FILLING GASOLINE TANKS

One of the first essentials of the safe handling of gasoline and naphtha is the complete recognition of the fact that neither liquid is specially dangerous as long as it is confined within some vessel and that vessel is nearly full, the real danger beginning only when a small quantity of liquid is mixed with a certain proportion of air, forming a very explosive compound. As long as all the pipes, valves and connections are tight, a full naphtha tank is not specially dangerous on a launch, but as the level falls in the tank the conditions become more and more favorable for an explosion. The conditions within the tank when it is nearly empty are indicated in Fig. 1, where the lines in the lower part represent the remaining liquid, while the many small dots represent the explosive vapor formed by the continual agitation of the liquid in contact with the air above it.

When it is necessary to fill the tank anew, the deck hatch is removed and the plate is unscrewed from the filling aperture in the top of the tank and a hose from the gasoline barrel is inserted. As the liquid fills the tank the conditions shown in Fig. 2 are realized; the mixture within the tank is displaced by the incoming liquid, finding an exit through the opening into the hold. This vapor, which is too heavy to rise of itself through the hatch, only rushes over the top of the tank and settles in the bottom of the launch, filling the spaces beneath the tank and between the frames with a highly inflammable mixture. If the launch be ceiled, as is frequently the case, the vapor will find its way through the "rooms" inside the ceiling, where it is still more unlikely to be dislodged by natural means, and the result of a possible explosion is still more disastrous.

The device shown in Fig. 3 is, we believe, original with Mr. Frank I. Hitchcock, of Bridgeport, Conn., general representative of the Globe marine motor for Long Island Sound. It is merely a piece of brass or iron pipe, of such diameter as to take a thread that will screw into the filling opening of the tank, and of such length as to reach well clear of the deck. When the screw plug is removed for filling the tank the pipe is screwed in its place and the hose is inserted in the pipe. The vapor displaced must find its way up the pipe and on making its exit at the top it is dispersed in the surrounding atmosphere. The same end might be attained by a fixed pipe from the tank through the deck, forward and aft of the hatch, with a crew plate at the deck, but there would be serious danger of leakage

through the working of the hull, which would tend to break the connection between the tank and the pipe. The plan shown is convenient, inexpensive and almost universally applicable.

FISHING BY POWER

The puff-puff-puff of the motor is heard on the sea everywhere, but nowhere so often as on the waters about the Eastern entrance to Long Island Sound. The introduction of motor boats for commercial purposes, ferriage, towing and cargo carrying has been revolutionary, but in no single business has it wrought so great a change as in that of fishing. The days of the uncertain and often becalmed sailing sloop are numbered, and the fisherman of to-day, when he starts for the grounds, knows when he will return to port, wind or no wind, depending upon his trusty motor snugly stationed in his cockpit. The fishermen now have regular schedules on which they conduct business. The pounds are raised to the surface by power, and in two hours, at stated periods, the fish are iced away in boxes and barrels, transported to the most convenient railroad or steamboat depot in the motor boat, to be hurried to the city markets, where they arrive in short order to be sold in less than 24 hours from the time the fish were swimming in their natural element.



FIG. 1

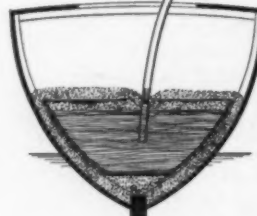


FIG. 2



FIG. 3

In Eastern Connecticut the hamlet of Noank, a few miles east of New London, ever rested its fame upon its fishing fleet. In recent years the fleet dwindled until often the sorrowful comment was made that Noank had only the great shipyard of the R. Palmer & Son Co. to depend upon. This was true until three years ago, when the motor boat began to make its appearance, and since the establishment of half a dozen small boat-building shops in the vicinity and four motor manufactories in the adjoining village of Mystic, the sorrowful tale of past glories in the fishing business have ceased circulating, for the sloops of old days

have been replaced by the motor boat, used in fishing and lobstering.

The Eastern Connecticut fishermen find the Providence and Stonington Steamship Co., whose boats run nightly from Stonington to New York, the most convenient means of shipment, and during the season for scup just ended the average shipment to New York each night was about 350 barrels. The lobstermen operate principally from Noank, and their catch is sent to New York by express, several Fulton Market firms finding it necessary to employ a local representative to purchase and ship lobsters during the season.

The business has been developed to such an extent that herring are now taken in season by motor-boat fishermen, a branch of the fishing business that has been neglected until last year, when a shrewd Rhode Islander set up a pickling plant at Stonington and took all the herring he could get, sending his output to the West Indies and realizing a handsome profit.

Of the advantages of the motor the fishermen are of one accord, one successful operator expressing the general opinion in saying: "Our motor boat is a great improvement, and you cannot imagine in how many different ways we can use it. When the tide is running strong against us and there is no wind, it doesn't bother us a bit, and besides being able to make our shipments of fish on scheduled time, we can troll for bluefish, tend our lobster traps and use the motor to raise them to the surface, and we are also able to handle extra fish pounds with the same crew. There were more than a score of these new boats used in trap fishing this year, and they average from 3 to 20 h.p."

The demands for motors at J. W. Lathrop's manufactory in Mystic has been be-

yond the capacity of a plant double in size during the past year, the orders coming not only from fishermen, but from many farmers and pleasure-seekers whose residences are located on or near the numerous rivers, bays and harbors, where motor boats can be used for excursions and picnics, as well as the transportation of farm produce.

NEW LEIGHTON MOTORS

SYRACUSE, N. Y., June 23. (Special Correspondence.)—H. J. Leighton was in Brewerton last week attending the launching of two boats which have his motors. One was a 40-ft. boat with an 18-h.p. motor,

belonging to C. L. Sheldon, of Auburn, and the other was a 36-ft. craft with a 12-h.p. motor, owned by Hobert Romig, also of Auburn. Both boats have canopy tops, and are finished in mahogany. They will be taken to Clayton, and will be run on the St. Lawrence during the summer.

Mr. Leighton has sold a launch to the War Department to be used for sounding the St. Lawrence River. It will be shipped to Ogdensburg.

Three other boats recently equipped with Leighton motors are those owned by Carl Amos, Dr. E. L. Mooney and George Pabst. Mr. Amos' boat is 30 ft., with 7-h.p. motor. She will be used in the Adirondacks. Dr. Mooney has a 28-ft. 4-h.p. launch for use on Onondaga Lake, and Mr. Pabst has a 4-h.p. boat, which he will take to Grinnell Island this summer.

Mr. Leighton to-day shipped a 25-h.p. motor to the St. Lawrence Boat Co. It will be put in a 40-ft. boat and taken to Providence, R. I.

THE WOODS-FROLIC COLLISION

The third investigation of the collision between the tug Arthur Woods and the gasoline launch Frolic was concluded on June 27 by the local representatives of the U. S. Steamboat Inspection Service. It will be remembered that the captains of the two boats were first exonerated by the coroner's jury; then a fine of \$500 was imposed on the tug and one of \$200 on the launch by the Treasury Department after an investigation by the Collector of the Port of Toledo, the former fine being reduced to \$200 on the appeal of the tugboat company. The last decision finds both parties in error—the launch for neglect of lights and signals, and the tug for carrying a passenger. The official decision is as follows:

STEAMBOAT INSPECTION SERVICE.

Local Inspectors Ninth District.
Collector of Customs, Toledo, O.:

Sir—Concerning the collision on the Maumee River, near Ironville dock, Toledo, O., on the 7th day of May, 1902, at about 10 p. m. thereof, between the towing steamer Arthur Woods, of Buffalo, N. Y., and the naphtha launch Frolic, of Toledo, O., we beg to make the following report:

After an investigation, in pursuance of authority conferred upon us by law, we find that Joseph W. Hepburn, owner of said naphtha launch Frolic, violate the Pilot Rules for the Great Lakes and their connecting and tributary waters in this, to-wit:

That he, the said Hepburn, neglected to carry lights and signals, as required by rule 28, and that, as said vessels approached each other in an oblique direction, he did not designate, by signal or signals, the side of the steamer he intended to take, and did not slacken his speed, stop or reverse, when in close proximity to the approaching steamer, as required by rule 11, paragraph 8 (fourth and fifth positions) of said Pilot Rules.

And we further find that Chas. A. Fitts,

pilot of said steamer Arthur Woods, in carrying a passenger at the time of said collision, violated an act of Congress approved July 9, 1886, as amended by the act approved February 23, 1901, relating to the licensing of vessels engaged in towing, to carry persons other than crew, and not conforming to the terms of the permit granted to towing steamers by the supervising inspector Ninth district.

The copies of the rules hereinbefore mentioned, and which are applicable to this case, together with the copy of the testimony adduced at the said examination, are herewith attached. Respectfully,

HENRY E. JUDSON,
WILLIAM F. PLIETZ,
U. S. Local Inspectors.

Following this decision, Capt. Fitts has been suspended for twenty days.

RHODE ISLAND YACHT CLUB

A race of launches, in three classes, formed part of the program of the spring regatta of the Rhode Island Y. C. on June 21. The day was stormy, with a heavy rain and half a gale blowing, making rough water over the course. The times were:—

CLASS 1—LAUNCHES 25 FT. AND OVER—
START 2.16.

	Finish.	Elapsed.
Vanish, W. H. Titcomb.....	2:54:45	:38:45
El Cid and Arebo did not start.		

CLASSES 2 & 3—13 TO 25 FT.—START 2.18.		
Katrina, Dr. Hawes.....	3:00:40	:42:40
Star, W. W. Arnold.....	3:03:25	:45:25
Muriel, L. S. Nock.....	3:05:15	:47:15

CLASSES 4 & 5—18 FT. AND UNDER—
START 2.20.

Mildred, W. L. Wood.....	3:12:30	:52:30
Tender, L. F. Olney.....	3:18:35	:58:35

LAUNCH NOTES FROM WISCONSIN

MILWAUKEE, Wis., June 30. (Special Correspondence.)—W. G. Fry and C. B. Montgomery, two mechanically inclined young men living at Madison, Wis., the State university town, have been working at evening since last March, and as a result have just finished a 4-h.p. gasoline launch. Exclusive of their labor, the boat cost them about \$500. She is 20 ft. 6 in. long, 5 ft. 8 in. wide and will draw about 8 ins. Her lines are those of a fast, seaworthy boat. She will be launched, on Lake Mendota, the first Saturday in July.

Charles W. Howard, of Neenah, Wis., is the owner of a new naphtha launch, Neenah, built by Capt. Conley, of Green Bay, Wis. She is 36 ft. long, and fitted with a naphtha engine made by the Gas Engine & Power Co., New York.

Capt. Conley, who is the Western representative of the company, recently fitted 3 30-ft. launches with 6-h.p. naphtha engines of the company's type for Kidney & Co., of De Pere, Wis. The Neenah is built to accommodate 25 or possibly 30 passengers.

A launch built at Manitowoc, Wis., and fitted with a gasoline engine by Kahlenberg Bros., of Two Rivers, Wis., has been com-

pleted and sent to Onokama Lake, Mich., where she will be used as a pleasure boat for summer guests and a ferry for passengers. She will carry forty people, and is the property of Peter Marsh, of Onokama, Mich.

The Racine Boat Co., Racine, Wis., has been at work for some time past on a new boat with which to test the vertical propeller of inventor Axline. The test will be made as soon as the launch is completed.

H. C. Rath, formerly a photographer at Manitowoc, Wis., has established a plant for the manufacture of marine engines at Appleton, Wis. The new plant will employ 25 men from the start.

THE SYRACUSE YACHT CLUB

SYRACUSE, N. Y., June 30. (Special Correspondence.)—The Syracuse Yacht Club held its first annual club run on Saturday. Fifteen power boats, carrying members and their families, left the Iron Pier at 3:30 p. m., Fleet Capt. Herbert R. Smith leading the run in his launch Premier. The fleet went to Three River Point, where those who so desired landed, the rest cruising in the river. By 7 o'clock all the boats had returned to the clubhouse. Among the boats in line were: A. T. Brown's Erro, Charles Fox's Ida May, J. William Smith's Helen, Robert Croasdale's Alamis, Randolph Duckrow's Duck, W. J. Jones' Mysterie, F. M. Power's Lucy C., Walter Esterbrook's May, Carl Amos' Christine, W. E. Kane's Mabel, K. D. Wildman's Margaret, Frederick Ackerman's Bunch, F. A. Austin's Hogel, H. Walter's Trinity and James Pass' launch. Upon the return to the clubhouse a dinner of seven courses was served to 250 people. An entertainment was given to those present, and dancing was enjoyed until midnight. On July 4 there will be races in which three classes of boats will start.

Leland Willis, of Canastota, has bought a 20-ft. launch from D. M. Tuttle, of Canastota, and will run it on Oneida Lake. It is fitted with a Cady gasoline engine, and is expensively upholstered.

On June 25 the steam yacht Admiral, George R. Sheldon, was in collision with the steamer Cepheus, of the Iron Steamboat Co., in the East River, New York, just under the new suspension bridge. The yacht struck the steamer on the starboard quarter, tearing a large hole in her side and injuring three men. The yacht's damage is not reported, but she went on her course, after ascertaining that the steamer was in no immediate danger. On the same day the steam yacht Alcedo, G. W. C. Drexel, was in collision with the Sound steamer Tremont, of the Joy line, off New London light. The yacht struck the steamer forward on the starboard side, losing her own headgear. Neither boat was seriously damaged.



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SATURDAY, JULY 5, 1902

THE PARIS-VIENNA RACE

The great road race of the year ended on Sunday, but as yet no reliable news has been received as to the winners in the different classes. The first of the 137 starters to reach Vienna was Marcel Renault, who dashed at speed through the city to the race track at the Prater. Unfortunately, he had overlooked the timing station which marked the formal end of the race, at Florisdorf, in the suburbs, and instead of stopping for the official signature and reporting at the track 45 minutes later, he covered the distance in but 18 minutes. Whether he was disqualified is not stated, but in any event he made a notable record for the light carriage made by his firm—a 4-cylinder car of 18-h.p.

The start was made at Champigny, in the suburbs of Paris, at 3:30 a. m. on June 26, in the presence of an immense concourse of spectators, many making an all-night picnic. Charron, in the new C. G. V. car, was first away, followed after two minutes by Fournier, with Edge and De Knyff after him. A little later came Foxhall Keene, while W. K. Vanderbilt, Jr., did not start until 5:43. The first day's run was to Belfort, 408 kilometers, De Knyff being the first in, at 10:47:30, followed by Henry and Maurice Farman. Mr. Keene was one of the first to come to grief, dashing into a railway gate when hardly a dozen miles on his way, and damaging his machine, though he escaped without personal injury. Fournier burst a tire and retired early in the race, and Vanderbilt was also compelled to withdraw.

Incidental to the main event was the James Gordon Bennett cup, for which the English motorist S. F. Edge was entered against the three French champions, Fournier, Girardot and De Knyff, the course being from Paris to Innsbruck, 682 kilometers. The first stage was covered by the leaders in about four hours, or at a speed of 100 kilometers.

Friday was given up to a slow run from the Swiss frontier, just beyond Belfort, to Bregenz, a distance for the day of 198 kilometers, the Swiss Government, contrary to the report of last week, having refused to authorize the race. The first half of the third day's course was a race between De Knyff and Edge for the Bennett cup, the Panhard breaking down within 30 kilometers of Innsbruck and leaving the Napier as winner of the Gordon Bennett cup. The honors of the day went to Baron de Forest, who was first at Salzburg, covering the 338 kilometers in 4 hrs. 40 mins. After him were Marcel Renault, Henry Farman, Count Zborowski and Mr. Edmond.

The leaders at Vienna were Marcel Renault, as already mentioned, Maurice Farman, Henry Farman, Count Zborowski, Baras, Edmond, Hemery and Baron de Forest, the latter being disqualified.

The contest, from all accounts, was a success, and attended with no serious accident to competitors or spectators. The roads in many places were not only very bad, but dangerous to a degree, and at high altitudes snow was encountered. The test of men and machines was a dangerous one, perhaps unnecessarily so, but there can be no question of its direct practical value to the designers and builders of motor cars, or of the beneficial effects in demonstrating to the public the capabilities and general merits of the new vehicle.

A LESSON IN LOCAL LEGISLATION

The prompt and timely action of the motorists of Philadelphia is likely to have far more than a local effect on municipal legislation, one of the vital subjects of the day. As a part of the crusade against the motor vehicle which is now general throughout this section of the country, a strongly restrictive ordinance was introduced in the Philadelphia Select Council, by which the speed limit was placed at five miles within the main part of the city and at eight miles in the outskirts. As matters stood, this ordinance would have been adopted, but the matter was taken up on the spur of the moment by some of the friends of the motor vehicle. A series of practical demonstrations, including brake tests and long rides through crowded streets, was at once arranged for, with the object of enlightening the governing power as to the capabilities of a properly made and handled car. At the same time work was pushed energetically in another direction, and by dint of several hurried meetings a new ordinance was drawn up for the consideration of the Council. This, based upon such French

and other laws as would best serve as models, gave all reasonable assurance of the safe use of motor vehicles in the public streets at speeds which would not be absolutely prohibitive.

This ordinance, which is given more fully on another page, covers a number of important points, the inspection and licensing of vehicles, the examination and licensing of drivers, the division of the city into three districts with speed limits of 7, 10 and 15 miles, and the securing of cars against accidental starting when left standing. On the other side of the question, it looks out for the rights of the motorists by providing a penalty for interference with machines left standing.

This new ordinance comes up for passage this week, and with good chances for its adoption, as the city authorities seem to have been very favorably impressed by the practical work of the cars, in competent and experienced hands. Should it become a law, it will be the most direct and practical step yet made toward the speedy and amicable adjustment of such differences as exist between the motor-owning and non-motor-owning portions of the public; and it will set an example which is likely to be widely imitated. In these days, when the selfishness and shortsightedness of a certain class of motorists is only equaled by the violent and illegal language and acts of their opponents, it is most gratifying to find two parties which can act toward each other with sense and discretion, as well as good feeling.

It is interesting to note the effects of the public demonstrations upon the press of Philadelphia. As the result of practical work and hard facts, the papers have generally lined themselves on the side of fair play and reasonable regulations. The editorials in the Philadelphia papers for the past week have been fair and moderate to an extent which is surprising to those who are familiar with New York daily journalism.

One day last week an automobile, driven by a professional chauffeur and carrying a woman and child in the tonneau, knocked down another woman at a crowded crossing in New York City. It does not clearly appear whether the car was driven recklessly or carelessly, or to just what extent the chauffeur was to blame, but the first impulse of the spectators was to attack the lady and child, and they would probably have suffered violence had not some gentlemen from a clubhouse close at hand come to their aid and hurried them into the building, preventing the crowd from pursuing them. The woman was not the owner of the car, but was enjoying a ride through the courtesy of the owner, and she was in no way responsible for its operation. Whether the chauffeur was to blame seems an open question, but the temper of the crowd was to wreak vengeance on all connected with the car.



NEW SYRACUSE MACHINES

The H. H. Franklin Mfg. Co. Sells its First Vehicle
—Century Gasoline and Electric Models
Appear This Week

SYRACUSE, N. Y., June 28. (Special Correspondence.)—The first machine which the H. H. Franklin Mfg. Co., of this city, has put on the market was bought a week ago by S. G. Averill, of New York. It had just been completed, but Mr. Averill started last Monday to run the machine to New York City. The machine has a dark green body finished in red, with red trimmings. It weighs 1,000 lbs., and the list price is \$1,200. It has a 4-cylinder, slow-speed, air-cooled engine, $3\frac{1}{4} \times 3\frac{1}{4}$ -in. cylinder, geared to run 750 r.p.m. at 15 miles an hour on the high speed. The transmission is by sun-and-planet gears, inclosed in an oil-tight box, and is direct from the engine shaft to the rear axle on the high speed. The speed is from 5 to 30 miles on the high gear and from $1\frac{1}{2}$ to 10 miles on the low gear. The cooling surface on the engine amounts to 20 sq. ft. The engine is controlled by throttle and automatic spark governor, and the ignition is by single jump spark coil, with vibrator. There is a float-feed carbureter, with special compensating attachment. Lubrication is by a force-feed lubricator pumping into the crank-case. Sparking current is furnished by an Apple dynamo, with storage battery. The wheel base is 68 ins., and the tread is standard.

Two New Models Out

The first of the new gasoline touring cars of the Century Motor Vehicle Co., which will be out this week, has been sold to a prominent Syracuse manufacturer. The company will also have a new model electric runabout out this week. The inquiries received for steam machines indicate a revival of interest in them. The Century company exhibited a steam runabout, steam surrey, electric delivery wagon and a steam runabout with top and fenders at the Syracuse Agricultural Exposition, held here during the week of June 16. Although this was the only display of automobiles made, aside from the parade of the Automobile Club of Syracuse, the exposition officials sent for an engraved certificate presenting the awards.

Another carload of Oldsmobiles will be received this week by the Syracuse Automobile Co., whose management says the demand has been surprising. Manager H. W. Perry has returned from a trip through the Middle West, where he went to look over the factories and secure vehicles that he thought would suit the Central New York

trade. He says the company can sell all the big touring machines it can get.

The Stearns Steam Carriage Co. has an order for 25 machines from an English concern, which is to have the exclusive sale of the Stearns machines in Great Britain.

SELLING ACTIVITY ON THE COAST

SAN FRANCISCO, CAL., June 24. (Special Correspondence.)—The Locomobile agency that was established here about two years ago received its fourteenth carload of vehicles this week. Manager Brenegar, of this agency, which also represents the Winton machines, exhibited a list of purchasers of Wintons that averaged one a day for the past ten days.

Manager Hawkins, of the White Sewing Machine Co.'s agency, showed the correspondent for THE AUTOMOBILE AND MOTOR REVIEW a fine list of this month's sales to date.

Agent Larzelere, of the Mobile agency, reports having responded to cablegram by shipping by last week's steamer four machines to Manila—two wagonettes and two dos-a-dos carriages. Next week he will start with a Mobile wagonette for Yosemite Valley to give demonstrations as a prelude to a possible sale of a score of 10-passenger wagonettes wanted there by the Southern Pacific Co. for passenger traffic between Winona and the Valley, 30 miles.

All the agencies report a pleasing growth in the demand for vehicles, but repeat the old complaint that they cannot get machines fast enough.

TOURING CARS IN SYRACUSE

SYRACUSE, N. Y., June 30. (Special Correspondence.)—The purchases of heavy touring cars made by several wealthy men have increased the demand here for that class of vehicles, and given the business an impetus generally. The most striking machine that has been run here is the new vehicle which Lyman C. Smith bought of the Robinson Motor Vehicle Co., of Boston. The machine was run from Boston to this city by H. L. Pope, son of Col. A. A. Pope, and assistant superintendent of the works. The machine has a seating capacity of seven persons, and has a canopy top. Its maximum speed is 35 miles, it weighs 2,750 pounds and cost \$5,000. Gasoline furnishes the power, and the machine is lighted by electricity from storage batteries. Mr. Smith, who is a millionaire typewriter magnate, made the purchase on the condition that the machine be successfully operated from Boston to Syracuse, so that its stay-

ing qualities could be tested. The car has apartments for an entire camping outfit, and in front are two large acetylene lamps of 390 c.p. each.

Grove Warner has a 15-h.p. Packard tonneau, and will also have an electric. Another machine which cuts a figure in the Syracuse streets is George Larabee's Winton touring car.

George W. Hill, of New York, and Mrs. W. W. Clark, nephew and niece of Chancellor James R. Day, of Syracuse University, who are touring through the country in an automobile, were the guests of the Chancellor last week. They have traveled about 2,300 miles, having been in the Adirondacks, and are now going to Pennsylvania.

AMERICAN EXHIBIT IN LONDON

The National Association Proposes a Combined Display at March Show—Interesting Information Contained in Last Bulletin

The National Association of Automobile Manufacturers proposes to engage space at the forthcoming international exhibition of motor vehicles and appurtenances to be held in London next March, and to give its members an opportunity to display their products in a combined American exhibit. Assistant Secretary Harry Unwin has sent out circular letters to the members to learn how many would care to participate. It is believed that a large American exhibit in London under the auspices of the National Association would be of great benefit to the makers in this country, as England offers the best foreign field for the sale of American vehicles, because no import duties are imposed. By securing large space and dividing the total cost among the exhibitors in proportion to the weights of the respective vehicles displayed, the expense to the individual makers would be greatly minimized. It is proposed that members be permitted to send one standard vehicle each, and that the machines be shipped from New York to London and back in one consignment, so as to obtain the lowest freight and insurance rates. The display will be in charge of a representative of the Association. Any member desiring to exhibit independently of the space secured by the Association will be permitted to do so.

A prospectus of the show has already been issued, so that prompt action is necessary. It is to be held under the auspices of the Automobile Mutual Protective Association at the Royal Agricultural Hall the last week in March.

PERFECTING NEW W. W. VEHICLES

William M. Lewis, president of the Wisconsin Wheel Works, at Racine, Wis., in an interview says that his company is now at work perfecting engines which will be used in automobiles to be turned out by the company next January. All the arrangements are being made by the company for the placing of the machinery necessary to this end. "The automobiles we will turn



THE BRITISH ENTRIES

Wolseley and Napier Cars for Paris-Vienna Race -
The Horizontal Motor and Multi-
Valve Exhaust

LONDON, June 20. (Special Correspondence). In London just now the coronation overshadows everything, so that but little is heard even of the Paris-Vienna speed section, which starts at 3 a. m. on the 26th, and this notwithstanding the fact that no less than five English-built vehicles will take part. The two Wolseley cars, in the G. B. event, will differ very largely from the rest of their competitors, seeing that the cylinders of their engines, three in one case and four in the other, will be horizontal, as is the case with the Wolseley standard engine. No other speed car with engines so constructed has as yet been started in these classic races. They have all—at least, all the successful ones—been fitted with engines set vertically and on the longitudinal axis of the vehicle.

There is an idea undefined and difficult of support among English automobilists that the horizontal cylinder is not the best practice, and cannot be depended upon to give the best results. Maybe the Wolseley cars, one to be driven by Mr. Montague Grahame-White and the other by Mr. Austin, the works manager of the Wolseley Motor and Tool Co., will disabuse our minds of this somewhat baseless conception, but we shall see what we shall see. The unfortunate part of it is that neither Mr. Grahame-White, who bears the reputation of being one of the most reckless and fearless drivers we have on this side, nor Mr. Austin, who has no sort of reputation as a driver, has ever taken part in such a brain-bewildering and nerve-shattering contest as this competition is likely to prove. The nervous tension at the start alone is sufficient to reduce most men to a pulpy gelatinousness, particularly when experienced for the first time. S. F. Edge, the only driver of experience—for, as you know, he has driven his 50 h.p. Napier in both G. B. and Paris-Vienna events—will this year direct a new 40 h.p. light Napier, built to scale inside 17 cwt. = 1,904 lbs., with accumulators and starting gear aboard, but shipped as she may be shipped for the weigh bridge of the A. C. of France, she will just go 16 cwt.

Details of the Napier Engine

The engine is a four-cylinder motor, with cylinders 5 ins. x 5 ins., and running at 1,000 to 1,200 revolutions. In the equality of stroke and bore the Napier practice has been somewhat departed from, whether with good results or no remains to be seen. The usual practice as to these engines has been otherwise followed; that is to say, the

engine is made with four-port inlet-valves, an arrangement lately copied by the Panhard firm. Each exhaust-valve discharges through its own exhaust-pipe straight into a silencer placed by the side of the crank-chamber; a throttle-governor of clever design is fitted, and cam-shaft and gear are all inclosed with the aluminum crank-chamber. The cooling water is forced to travel around the water-jackets of the cylinders by a centrifugal pump driven by a chain of the engine-shaft, the governor-spindle being similarly driven.

As the conditions of the G. B. contest make it incumbent that every part of each competing car shall be made in the country which it represents, the usual tier of Loyal radiators could not be used, and a set of Clarkson's radiators (vertical loop-wire-enveloped copper tubes set in a frame) are in this car placed in front of the motor-bonnet. The impingement of the air when the car is running is deemed sufficient to cool the jacket water, but when the vehicle is at rest and the engine running a large vaned fan of aluminium, mounted on a special spindle and chain driven off the engine-shaft, is started to keep down the temperature of the cooling water. Indeed, should forced draught be considered necessary en route, the fan can be started from the driver's seat, for the chain-wheel by which it is driven is loose on the engine-shaft and is rotated thereby at will by the engagement of a little friction-clutch in its boss.

The light Napier is fitted with an adaptation of the well-known Napier gear, really an enlargement of the Panhard arrangement, giving three speeds forward and one reverse, the third speed being a direct drive through the gear-box and universally-jointed propeller-shaft to the bevel-toothed gear surrounding the differential-gear-box on the live rear road-axle. This is a great departure for the Napier people, and would seem to bear out the idea now gaining credence that with the reduction in the weight of cars, drive by chain from countershaft ends to bosses of road-driving wheels running on fixed axle will fall into disuse. By this arrangement, of course, the whole of the driving-gear can be completely encased and protected from wet and mud, and run in oil, which certainly offers many advantages. The wheel-base of the Napier crack measures no less than 7 ft. 7 ins., while the wheel-gauge, center to center of tires, is 4 ft. 8½ ins., the English railroad gauge.

Whatever this carefully designed and beautifully constructed car may do in the future is, of course, now on the knees of the gods; but naturally enough, and if only

in appreciation of the pluck and pertinacity shown by the Napier group in forcing English automobile constructors to the fore under heavy disadvantages, all English automobilists are anxious for their success.

The 650 Miles Trials

The rules and regulations for the Automobile Club's 650 miles trials of motor vehicles are given to the world this week, and upon perusal are found to differ considerably from those which obtained in either the 1,000 miles trials in 1899 or the Glasgow trials of last year. The chief distinction is in the mode of classifying the cars, which is done entirely by price, without relevance to either weight, horse-power or carrying capacity. Eleven classes are provided for and lettered as follows:

Class A, \$750 selling price; Class B, \$1,000 selling price; Class C, \$1,500 selling price; Class D, \$2,000 selling price; Class E, \$2,500 selling price; Class F, \$3,000 selling price; Class G, \$3,500 selling price; Class H, \$4,000 selling price; Class J, \$5,000 selling price; Class K, \$6,000 selling price; Class L, over \$6,000 selling price.

The above are the classes in Section I. of the trials; Section II. is confined to ignition devices, governor devices, etc., etc., to be entered by inventor, manufacturer or vender, tires excepted, as special tests are to be arranged for these worries of the automobilist. The bore and stroke of the cylinders of the engines will, however, be given on the entry form. To avoid excessive speed, controls will be established on the course of each day's run, and a low limit of speed fixed for the passage of the cars through the towns and villages occurring on each route.

The system of marking for reliability strikes me as somewhat complex. There will be compulsory stops per day for refreshments, ¼ hr. in the morning, ¾ hr. for luncheon and ¼ hr. for tea. During these halts the engine must be stopped, but adjustments may only be made during the luncheon interval. Stops for traffic, accidental detours and lighting lamps, will not be scored against the cars, but five marks will be deducted for every stop for tire trouble.

Hill tests will be introduced into the trials, for which marks will be awarded according to the following formulæ:

$$\text{h.p.} \times 100,000.$$

Price in £ \times 8 for every shilling's worth of fuel consumed.

The h.p. will be arrived at as follows:

$$\frac{\text{Vertical height of hill in feet} \times \text{Weight of car and load in lbs.} + 40}{\text{Time in minutes} \times \text{lbs. for every ton of total weight.}}$$

$$\frac{\text{Time in minutes}}{33,000}.$$

Preliminary trials to test the efficiency of the brakes fitted to entered cars will be held on August 3, and marks will be deducted in accordance with the inefficiency of the brakes. The awards will take the form of gold and silver medals as first and second

prizes in each class, and will be made by adding together the marks gained by each car during the trial for:

- a. Reliability.
- b. Hill-climbing.
- c. Speed on private track (marks = speed in miles per hour $\times 10$).

d. H.p. and weight.

e. Steering-gear.

f. Brakes.

g. Condition of car at end of trials.

The h.p. will be arrived at by the following formula:

H.p. as shown by performance $\times 100$
 \times the number of passengers carried.

Weight in cwt. (112 lbs.) without passengers.

The speed trials, one kilometer flying, will take place over the Bexhill course on the last (sixth) day of the competition.

Another Meeting at Bexhill

A race meeting will be held on the Bexhill course on August 4, Lord De la Warr having offered £100 for cash prizes. Tournament and speed sections are arranged for, the first in six classes and the second in five classes. A handicap and an appearance competition will also take place on the speed course at Welbeck Park, where a mile straight is obtainable, and which course his Grace the Duke of Portland has lately had straightened at his own expense. Speed contests similar to those at Bexhill will be held on August 8, so that the opening week of that month will see English automobilists fairly agog.

July 21 to July 26 will be occupied with trials of electrical vehicles, and we are not without hopes that a car or cars fitted with Mr. Edison's much paragraphed new accumulators may be entered. There is more than a little skepticism re these accumulators among electricians on this side, owing to the cry of "Wolf!" that has been raised so frequently with regard to Mr. Edison's inventions.

The membership of the Automobile Club of Great Britain and Ireland is increasing by leaps and bounds, no less than 90 candidates, among whom are many prominent members of the aristocracy and society, being up for election at the present moment.

PARIS-VIENNA

Details of the Swiss and German Parts of the Course—Effects to Secure the Removal of the Neutralization Decree

BERLIN, June 21.—Coming events cast their shadows before, and the Paris-Vienna race, although now finally decided upon, seems still to have dark and dusky shadows galore to fight with, as both Switzerland and Bavaria do not, in spite of all, seem over-willing to let the racers traverse their countries. The Austrian authorities have more than sufficient work to do, and they have come up well to the mark in spite of the time lost by indecision on the part of the government. The Austrian Commissioners General for the tour are Count Siegfried Wimpffen, Dr. R. von Stern and

Michael, Count Esterhazy. Dr. von Stern has charge of the organization of the run from Bregenz to Salzburg, Herr Harmsen from Salzburg to Vienna, and part of their duty consists of riding over the route, holding audiences with the mayors of the places on the line, working out the neutralization, instructing the cyclists and fire brigades, etc. Dr. von Stern met with the greater good will in Bregenz and a few days back was working in Innsbruck, while Herr Harmsen on his return to Vienna stated that the roads are extremely good, with the exception of the neighborhood of Salzburg itself. The subscription for the guarantee fund of the Austrian A. C. has reached a good height, whilst Archduke Ludwig Victor has presented the A. C. with a valuable prize, consisting of a driven silver cup.

Details of the Route

The tour to Bosnia on completion of the Paris-Vienna ride is one of the items on the programme, and all participating will have a splendid reception. If everything were as smooth as the Bosnian trip, the Paris-Vienna committee could congratulate itself, but each post brings conflicting statements as to what is happening in Switzerland and Bavaria, and it will be only when the men are under way that we will really be certain as to what's what. The A. C. de France has, according to the telegraph, received permission from the Swiss authorities to traverse Switzerland at racing speed, and with the exception of the towns, the Aarberg is to be the only neutralized district on the whole route. This would naturally give the event a totally different complexion, making it a complete race and not a two-division event. A correspondent, writing to a leading German sporting paper, doubts the accuracy of the above statement, as permission would have to be had from the authorities not of the Swiss League, but of each separate canton itself; and his inquiries, made on the spot, have not met with any favorable results; in fact, in some places nothing at all was known of the permission. In Munich the populace, deaded by the most important daily paper in Bavaria, is clamoring for a revocal of the sentence issued by the government closing up Munich, which was originally chosen as one of the points for the race, and should Upper Bavaria be given free, it is possible that an alteration might be made in the route, which, instead of leading over the Aarberg, would be directed from Lindau to Munich. However, nothing is definitely settled at present. Prince Galitzin has arrived in Vienna, accompanied by the two ladies one of whom cleverly steered the car a great part of the way. He was satisfied with the general condition of the roads he traversed, and met with a warm reception on the part of the Austrian A. C.

Germany's prospects of a victory have decreased since it was decided to withdraw the Mercedes cars from competition, and the news follows that Mors, too, will not line up at the start. The two German factories

entered besides Daimler-Mercedes are Duerkopp and Benz, Nicolaus Duerkopp himself steering one of his three vehicles.

The Düsseldorf Exhibition

Cycles and motor vehicles were comparatively well represented at the Industrial Exhibition at Düsseldorf, which was open only to factories and firms of the Rhinelands and Westphalia, and therefore limited; but nevertheless the Adler Works, of Frankfort-on-the-Main, contributed a handsome section. A new car built in tonneau form, but with a wide seat at the rear, is the outcome of much experimenting, and a new underframe with an 8 h.p. single cylinder motor also attracted much attention. The circulation-pump for the water-cooling system is directly coupled to the motor, and a new arrangement has been made for the radiating coils. The Aachen Motor Works, formerly Cudell & Co., exhibited a very handsome hunting car of mahogany, with a two-cylinder motor in front, as well as a delivery van, with the motor in the same position. The firm has lately busied itself with the construction of motor boats fitted out with its improved benzine motor, and the heads of the business intend pushing this branch of motorism to the best of their ability.

The German Emperor and Empress recently inspected several of the alcohol motors and cars employed in the various departments of the imperial estate at Cadinen, the director of the motor factory at Oberursel instructing their Majesties in whatever information they desired. The Emperor's attention concentrated itself on the working of the alcohol plow over the extremely hilly territory of the estate, an innovation of much value for agriculture, Cadinen being foremost in its extensive use of the alcohol motor for plowing. The director of the Oberursel factory was rewarded for his pains by the receipt of the Royal Crown Order.

Baron Henri de Rothschild has recently accomplished a striking feat, riding from Paris to Pforzheim (770 kilometers) in one day. He left Paris at 4 a. m. in a 6 h.p. car of German make, intending to get to Cannstatt (795 kilometers) before midnight, but on his arrival at Pforzheim very late at night, he was unable to find anybody to put him on the right road to Cannstatt, and so he had to remain at Pforzheim, very contented with the splendid way his motor fulfilled his demands.

Shanghai is putting us in Berlin to the blush, for, according to a publication in the *Board and Trade Journal*, the town council is open to accept offers from firms desirous of introducing a line of motor omnibuses in the town. May the efforts in Shanghai meet with more success and consideration on part of the authorities than experienced in Berlin!



RHODE ISLAND CLUB QUARTERS

The accompanying engraving is from a photograph of the suite of rooms in the Crown Hotel in Providence, R. I., occupied by the Rhode Island Automobile Club.

This energetic club now has a membership of 85. The quarters in the hotel, with which is connected a dining room for the members, will be occupied until the club has completed a new clubhouse.

Club runs have been planned for every week during June and July, and there will be race meets in August and September. A smoker is held each month. Initiation fee is \$50 and annual dues \$25. B. S. Clark was recently elected secretary to succeed H. H. Rice.

MASSACHUSETTS A. C. FIELD DAY

The Massachusetts Automobile Club held its second annual field day at Cohasset, Mass., on June 17, the run from Boston being in charge of Col. J. T. Soutler, president, who started from the clubhouse on Boylston St. at 10 a. m., and the others followed as they pleased, suiting the speeds to their individual tastes. There were about 40 machines in the run, which was through Milton, Quincy, Weymouth and Hingham. They arrived at Cohasset at about 1 o'clock, where the 80 members had luncheon and were the guests of Elliott C. Lee, one of the vice-presidents of the club, and enjoyed the privileges of the handsome Mrs. Edward Cary estate at Sandy Cove, commanding a view of the ocean, until about 3.30, when the return trip was started.

The executive committee of the Massachusetts Automobile Club has voted that the driving of automobiles in excess of the speed limit and any violation of the laws governing automobiles is disapproved of by the club. The club has called the attention of members to the fact that any member convicted of driving his automobile in excess of the legal rate of speed may be expelled.

THE STATE ASSOCIATION PLAN

Frederick H. Elliott, secretary of the Automobile Club of Syracuse, has received a letter from Frederick Sager, secretary of the Automobile Club of Rochester, stating that his club will support the plan of forming a New York State Association of Automobile Clubs. Mr. Elliott will go to Buffalo soon to enlist the support of that club. Recently he called on the secretary of the Utica Club, and placed the project before him. The Utica Club is in favor of the move, and the opinion is that it will greatly benefit the motorists of the State. Other clubs will be visited soon. There are 10 clubs in the State, which is one-fifth of

the total number in the United States. This would make a strong organization.

The first club run of the season was held by the Automobile Club of Syracuse on the opening night of the Syracuse Agricultural Exposition, when twenty machines turned out.

The governors of the A. C. A. have requested that members of the club refrain from driving their vehicles on the east drive of Central Park on Saturday afternoons and Sunday, when that drive is crowded with spirited horses that are liable to be frightened by the automobiles. Some time ago the club asked its members to abandon the use of the narrow park entrance at 7th Ave. and 59th St., and the request has been almost unanimously observed.

The Automobile Club of St. Louis has applied to the Circuit Court for a pro forma decree of incorporation. The officers are: F. H. Walker, president; E. M. Sen-

W. Brandow; vice-president, Samuel G. Colt; secretary and treasurer, L. A. Merchant. The club will soon build a fine station and clubhouse, having already secured an option on a desirable site. The organization started with about 30 members.

The Jersey City Automobile Club is arranging for an automobile parade, to be held on the Hudson County Boul. in the latter part of September. An effort will be made to have every automobile in the county in line on this occasion. There are more than 50 vehicles in use in the county.

At a recent meeting the Automobile Club of Pittsfield, Mass., discussed the advisability of erecting an automobile station, for which plans will be submitted at the next meeting. A fireproof building 25x50 ft. and one story high was proposed, to be so constructed that another story can be added when needed.

The first automobile parade ever seen in Minneapolis was one of the features of the Elks' street fair and carnival on the evening of June 10, when there were 30 vehicles in line, all handsomely decorated. J. George Smith, of St. Paul, was awarded the first prize for decorations. His vehicle represented a float drawn by two doves. Mr. Smith was attired as Saint Paul, with a halo of electric lights about his head. His



CLUB ROOMS OF THE RHODE ISLAND A. C.

seney, secretary, and Edward Mallinckrodt, Jr., treasurer. The board of directors consists of the officers and Jules F. Valle, George B. Leighton, A. Niedringhaus, John S. Carter, John Ring, Jr., and Horace Rumsey.

The newly organized Berkshire Automobile Club, of Pittsburg, Mass., has elected officers as follows: President, Dr. Frank

young daughter represented Miss Minneapolis. Mrs. L. H. Fawkes was given second prize, and George E. Dorr third.

One hundred and sixty-five motor vehicles were registered with the Secretary of State at Albany, N. Y., during the month of May upon the payment of \$1 license fee each. This makes a total of 1,600 registered this year up to June 1st.

THE N. A. A. M. BULLETIN

The growth of the National Association of Automobile Manufacturers from a total membership of 38 on November 10, 1900, to 112 on April 21, 1902, together with a complete list of the active and associate members, is published in Bulletin No. 3, issued on June 15 by the Association.

The result of the endeavors of the Association toward securing a reduction of the high insurance rates is shown by the quotation of the following rates, which are nearly a 50 per cent, reduction: To ports in the United Kingdom and Continental Europe, between Bordeaux and Hamburg, inclusive, 17½ cents per \$100 of invoice value; Mediterranean ports not east of Sicily, 25 cents; Australia and New Zealand, 50 cents, and South America, 25 to 35 cents per \$100 invoice value. These rates are for shipments by first class lines on Atlantic steamers and on approved steamers to the Antipodes. Rates on second class Atlantic steamers are about 15 per cent. higher.

The Association is also trying to obtain a reduction of the freight rates and a better classification of automobile shipments, and asks for further information relating to the subject.

Automobile Taxes in the Philippines

Replying to a letter of inquiry from the National Association, A. S. Crossfield, collector of internal revenue for the Philippine Islands, gives the following information, which is published in Bulletin No. 3:

"I do not find that the existing laws of the archipelago contain anything in relation to automobiles as such, nor do I know of any contemplated laws in relation thereto. As collector of internal revenue, I have classed automobiles as four-wheeled public carriages, when so used, and as such they each pay an industrial tax annually of \$20 local currency (\$8.81 U. S. currency at the present rate of exchange), and a vehicle tax, \$12 local currency (\$5.29 U. S. currency).

"If used only as a private carriage the industrial tax is not collected.

"In my capacity as city assessor and collector, I have licensed automobiles, under the heading in the City License Ordinances, of 'four-wheeled carriages drawn by two horses,' at the fee of \$4, gold, per annum.

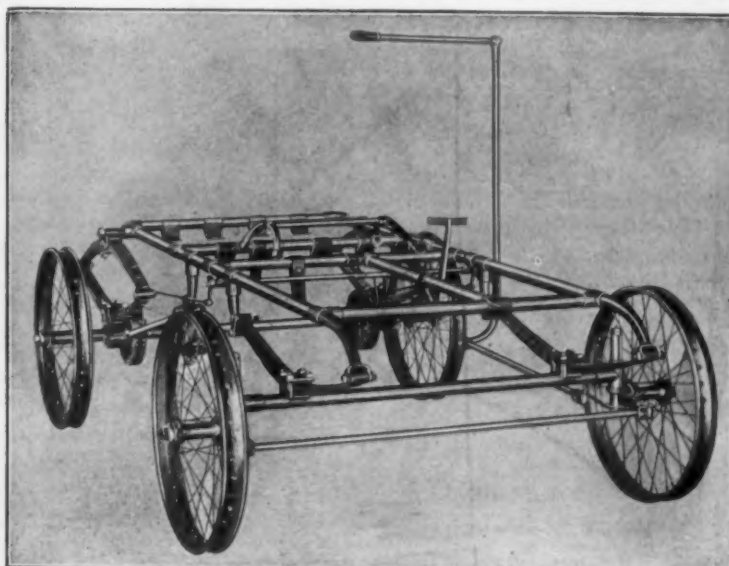
"An automobile factory would be exempt from industrial taxes for two years after it was established. After the expiration of that period, such factory would pay an industrial tax of \$150, local currency (\$66.08 U. S. currency), per annum. The annual license fee of such a factory, which would be payable from the date of establishment, is \$25 U. S. currency, per annum.

"A dealer in automobiles, unless in connection with other licensed business upon which the industrial taxes have been paid, would pay a license fee of \$2, gold, per year, and an industrial tax of \$150, local currency (\$66.08 U. S. currency)."

HERCULES RUNNING GEARS

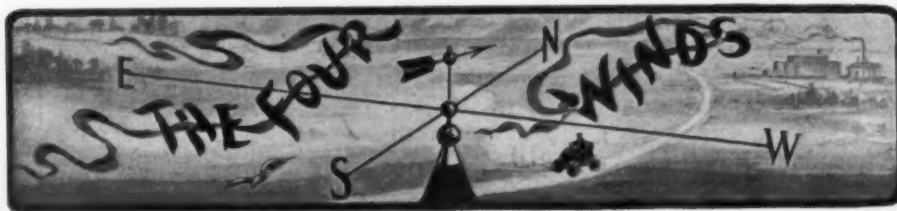
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PHILADELPHIA CONTROL TRIALS

Last Week's Brake Tests Result in Immediate Change of Attitude of Councilmen and Alteration of Ordinance

PHILADELPHIA, June 30. (Special Correspondence.)—The past week demonstrated that the Quaker City Councilman is amenable to reason and open to conviction. Following the control tests of Tuesday afternoon, the Law Committee of Councils, to which was referred Selectman Patton's ordinance limiting automobile speed to a maximum of five miles in the center of the city and eight miles in the outlying sections, amended the measure till it bore but little resemblance to the original bill. After changes in practically every section, the Patton ordinance was favorably reported, and will come up for action by councils next Thursday.

After seeing the brake tests on George's hill last Tuesday afternoon, all hands seemed to be satisfied that the Patton ordinance had been drawn without a proper knowledge of the facts.

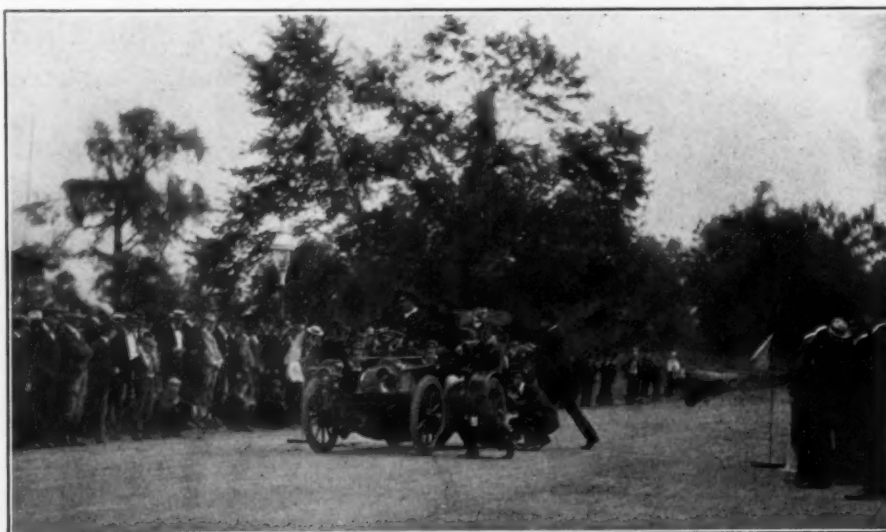
Opens Officials' Eyes

E. B. Gallaher, in a Mors touring car, opened the game and the eyes of the official on-lookers by some marvelously quick stops at various speeds. He was accompanied in the vehicle by Thos. S. Wiltbank, chairman of the Law Committee, to which the ordinance has been referred; George McCurdy, president of the Council, and Col. Snowden, president of the Park Commission.

Winthrop E. Scarritt, president of the American Automobile Association, acted as umpire, while Henry G. Opydke, official en-

gineer of the Automobile Club of America, was also present to obtain official measurements.

Mr. Gallaher made six demonstrations at different speeds, and was followed by several other expert operators, all giving prac-



THE PHILADELPHIA BRAKE TRIALS

tical demonstrations of the ease of control of automobiles of different types.

Novice Makes Best Showing

The city officials then asked for a test by a comparatively unskilled hand, and an Autocar was taken out by L. L. Biddle, who had had only 10 days' experience in operating a vehicle. There were three others in the vehicle, which, going at the rate of 24 miles, came to a stop in 50 ft. 10 ins., a

much better performance than any by the most expert drivers.

A four-horse coach and a trotting team were also tested, but the exhibition of neither compared very favorably with the best performances of the automobiles. A park policeman, mounted on a brakeless bicycle, came down to the tape at about a three-minute speed, and he traveled quite 60 yards before the machine came to a stop.

The accompanying table shows the distances required by the various contestants to bring their vehicles to a stop when traveling at various rates of speed, the majority of the operators being experts in the

TABLE OF PHILADELPHIA BRAKE TESTS.

Vehicle.	Motive Power.	Driven by.	Weight, pounds.	Miles, per hour.	Stopped in.
Locomobile surrey, steam.....		Harry Elliot.	1,200	27½	71 ft.
Columbia phaeton, electric.....		Herbert Lloyd.	2,700	17½	40 ft. 6 in.
Oldsmobile runabout, gasoline.....		Percy Nell.	950	21	33 ft.
Autocar tonneau, gasoline.....		John S. Clark.	1,400	19½	59 ft. 8 in.
Autocar tonneau, gasoline.....		John S. Clark.	1,400	21½	62 ft. 8 in.
Winton touring car, gasoline.....		E. A. Maltby.	2,000	23½	56 ft. 5 in.
Mercedes tonneau, gasoline.....		Jules Sanchard.	2,300	25½	68 ft. 2 in.
Packard runabout, gasoline.....		Arthur Winslow.	2,100	19½	42 ft. 8 in.
Columbia runabout, electric.....		Herbert Lloyd.	2,700	12	12 ft. 7 in.
Panhard touring car, gasoline.....		Jules Sanchard.	3,000	27½	74 ft.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	8	7 ft. 3 in.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	13	10 ft. 1 in.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	17½	22 ft.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	18½	25 ft. 2 in.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	21½	40 ft.
Mors touring car, gasoline.....		E. B. Gallaher.	2,200	30	91 ft. 3 in.
PRIVATE OWNERS.					
		Driven by.	Weight, pounds.	Miles, per hour.	Stopped in.
Runabout, electric.....		Arthur Black.	1,000	14½	30 ft. 4 in.
Autocar, gasoline.....		L. Biddle.	1,400	24	50 ft. 10 in.
Trotting wagon.....		Wm. H. Bunn.	21½	61 ft.
Four-in-hand.....		E. Browning.	17½	62 ft. 8 in.
Bicycle policeman.....		185 ft.

employ of the local makers and agents.

Safety Depends on Operator

At the luncheon held after the tests at Belmont Mansion, Winthrop E. Scarritt, in an address, congratulated the Philadelphians on their work, and pledged his word that 10 miles an hour in the business limits was perfectly safe. "Why," he said, "horses go faster than five miles an hour any place."

President McCurdy, of the Common Council, who followed him, said that although always a lover of the horse, he had learned much at the test that was a great surprise to him. "I was nonplussed," he said, "when I really saw how slowly we were going when the rate was ten miles an hour. The quick stop is marvelous. I consider that eight or ten miles is slow enough in the congested districts, and twenty miles about right outside. To my mind, the whole question lies with the man who controls the machine."

Tests Have Immediate Effect

At the meeting of Council's Law Committee the following day the effects of the Tuesday's tests were early made manifest. President of Common Council McCurdy was strenuous in his endeavor to befriend the automobilist with a maximum of eight miles in the central part of the city, and twenty miles in the outskirts; but a com-

promise was finally effected on seven and fifteen miles respectively.

As stated above, the Law Committee practically amended the bill into a new one. Hereafter all automobiles operated on Philadelphia's streets must be licensed, and before such license is issued (at \$2 cost), the model must have come up to certain specifications in construction, such as provision against the escape of fuel oil, centralized controlling gear, mufflers, brakes and reversing apparatus, and a certificate to that effect will be issued to the manufacturer by the Department of Public Safety, which is given power to enforce the regulations. The license fee entitles the owner to a certificate and number, the latter to be carried in a conspicuous position on the vehicle.

The regulations governing expert chauffeurs and other operators in the employ of owners are strict. After satisfying the Bureau of Public Safety officials that he is competent to manage a self-propelled vehicle, each such chauffeur or operator is required to take out a license (at \$2 the first year and \$1 per annum thereafter), without which license the chauffeur will be liable to a fine.

Officials of the Bureau of Boiler Inspection must inspect each steam machine before a license is issued.

Zones of Speed Limits

The seven-mile speed limit district in the center of the city will include the territory bounded by Vine and South sts., and the Delaware River and Sixteenth st., and that speed limit must also be observed in the business portions of the outlying suburbs of Manayunk, Germantown, Roxborough and Frankford. Beyond the central district, and inside the territory bounded by Fifty-second St. on the west, the lines of the seven-mile district on the east, Porter St. on the south and Erie Ave. on the north, a speed of ten miles will be permitted. Throughout the rest of the city the fifteen-mile limit may be maintained indefinitely, provided, however, that operators must slow

down in passing horse-drawn vehicles and come to a full stop when requested to do so by owners of nervous animals.

Punishment Provided

Fines of \$50 for the first offense, and \$75 for each succeeding dereliction are provided for in the case of manufacturers who neglect to comply with the provisions of the ordinance. In the case of operators, the first infraction of the ordinance will cost \$10 less, while in the event of a repetition of the offense suspension or revocation of license (as the director of the Department of Public Safety may elect), is provided for.

A BIG SEASON AT NEWPORT

NEWPORT, R. I., June 28. (Special Correspondence.)—The automobile season here

bids fair to eclipse all previous ones in Newport. There are many standard vehicles already in use, and a number of excellent storage and repair stations to look after customers' wants.

At one station the writer was informed that at present 40 vehicles are being stored, as compared with only 7 one year ago. A new repository, close to Bellevue Ave., is rapidly being filled, in spite of its unfinished condition.

There is a pronounced feeling of contempt for speeding automobiles above the legal limit. Not only is this expressed by the owners of horses, but also by users of motor vehicles. A letter of protest, signed by 33 prominent residents, has been sent to the chief of police, requesting him to strictly enforce the law.

[BETTER HOSPITAL SERVICE NEEDED

SAN FRANCISCO, CAL., June 20. (Special Correspondence.)—Two hurry calls for the City Receiving Hospital ambulance to South San Francisco three nights ago have caused the hospital officials to resume talk in favor of an automobile ambulance. In consequence of the hard driving, one of the ambulance horses is laid up, while the time it took to make the long drive left the hospital without an ambulance for several hours. The matter of having a horseless ambulance is in the hands of the Aldermen, who have taken action to the extent of advertising for bids, according to plans and specifications approved by the hospital corps of physicians and surgeons.

The Chicago Motor Vehicle Co. has started in service of its Auto-coaches in Beatrice, Neb., under a franchise secured from the city.

HIGH DUTY STEEL BALLS

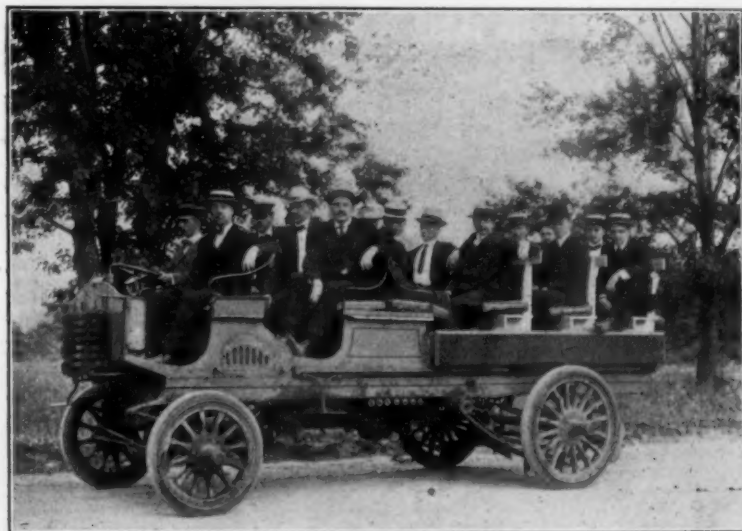
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AUTOMOBILE AND CYCLE PARTS COMPANY
BALL AND PEDAL FACTORY
Cleveland - - - Ohio



AN IMPROVED OBSERVATION CAR, THE FOURNIER-SEARCHMONT TRUCK

FRENCH CARS IN AMERICA

A New Company Organized to Market the Georges Richard-Rochet-Schneider and the Panhard May be Made Here

The American Georges Richard Co., of New York, was incorporated on June 30 at Albany, with \$10,500 capital to market the Georges Richard cars in the United States. The directors are Alexander Fischer, A. S. Merrill and N. M. Mason, all of New York City. Mr. Fischer, of the General Motor Car Co., is president of the company. Two of these machines that arrived last week from France are fitted with mud fenders.

Ernest Cuenod, vice-president of the Automobile Club of Switzerland, who represented the interests of the Georges Richard and the Rochet-Schneider cars in this country, is also reported to have practically arranged for the manufacture of the latter machines in this country. The Rochet-Schneider car, which he brought over with him when he came five months ago and with which he won the prize cup in the Roslyn Hill hill climbing contest, and captured blue ribbons in the Long Island and A. C. A. endurance contests in April and May, is now at the factory of the Automobile Co. of America, in Marion, N. J., where it is to be used as a model. Although the several meetings of M. Cuenod with the officers of the company did not result in any definite arrangements being decided upon, some attention may be given by the company to the production of these machines.

The Electric Vehicle Co., of Hartford, Conn., has been experimenting for more than two months to determine whether or not it could reproduce the Panhard machines in this country, and the results have been so satisfactory that it is expected the manufacture of these machines will at once be undertaken for the American market. Five machines that are exact duplicates of the foreign vehicle have been completed. They are of 12 h. p. and are fitted with a motor that is exactly similar to the Centaure motor illustrated in these columns last week. The Panhard, from which the replicas were made, is one of two brought to this country by Hart O. Berg, Paris representative of the Electric Vehicle Co., two months ago. The other machine was sold to Charles M. Schwab.

WINTON MAKES A MILE IN :51 1-5

Alexander Winton, in his powerful new racing car called "The Bullet," beat the world's record over a measured mile last Friday, clipping 3-5 of a second off of Fournier's record of :51 4-5. The trial was unofficial, however, not having been sanctioned nor timed by the American Automobile Association. Mr. Winton expects soon to repeat the trial under sanction and with official timers. He does not believe in straight-away trials, but advocates track racing.

"The chief object I have in speeding is to get the benefit of the good of the industry," he says, "put a racing car upon a mile oval and let it skid around the turns and

dash up and down the straights. No strain could be greater and no service harder. During a long racing season the imperfections of any construction are bound to show up, and it is these imperfections and the constant development of the racing car which make it possible for me as a manufacturer to get upon the market with a high grade standard commercial car which meets the exacting requirements of the average user. The present standard Winton touring car of our manufacture is more or less the direct result of my last season's racer."

The new racing machine is driven by a four-cylinder motor and weighs 2,000 lbs. Mr. Winton declines to tell the horse power.

TRIP WITH A KEROSENE BURNER

Practical Demonstration Made by Overland Journey from Lynn to New York City in a Steam Vehicle—Burner Ready for Market

Capt. W. E. Pearson and George L. Badger, respectively vice president and assistant superintendent of the Equitable Auto-Truck Power Burner Co., arrived in New York City last Thursday after an overland ride from the factory in Lynn, Mass., in an old Locomobile fitted with the company's recently perfected kerosene oil burner. The machine was on exhibition all day Friday at the Automobile Storage Station on 38th St., near Broadway. All afternoon Mr. Badger had S. T. Davis, Jr., president of the Locomobile Co. of America, and J. A. Kingman, advertising manager of the company, out in the machine, demonstrating the operation of the new burner. Randolph Walker and Mr. Field also were down from the factory of the Mobile Co. of America, at Irvington-on-the-Hudson, to inspect the burner.

The purpose of the overland trip was to demonstrate in the most practical and convincing way the efficiency of the burner, which the Equitable company has expended \$35,000 in bringing to a state of perfection during the last two years. Although the company has a new tubular boiler of its own, and has nearly forty steam carriages of the runabout type almost completed, it preferred to attach its burner to a Locomobile equipped with the regular boiler in order to show that the kerosene burner can be attached to carriages already in use without making expensive changes.

The mountain roads in the western part of Massachusetts were found to be in very bad condition and very hilly, which caused an unusual consumption of fuel per mile traveled and was a severe tax on the vehicle. The following data of the trip was given by Captain Pearson to the representative of the AUTOMOBILE AND MOTOR REVIEW.

Averaged 8 1-2 Miles per Gallon

Distance traveled from Lynn to New York, 294.24 miles; actual running time, 40 h. 15m.; kerosene oil consumed, 34½ gals.; water used, 325½ gals.

These figures show that the carriage, with two persons up and a large luggage hamper

tied on behind, averaged more than 8½ miles per gal. of fuel and that 1 1-10 gals. of water was used per mile. One pound of oil evaporated 12 3-10 lbs. of water. On hard level roads Captain Pearson states that he has frequently made 12 miles per gallon of fuel.

The burner has been thoroughly tested for a year past, and the Equitable company is now ready to enter the market and expects to be in position to fill orders without delay. Detail drawings and description will be ready for publication in a week or ten days. The burner is a simple affair, having half a dozen jets or nozzles arranged in series within a hood and attached in the usual position of the generator. Ample space is permitted for the drawing in of air, about 37 parts of which is consumed for each part of oil. The oil is driven through the burner from the usual gasoline tank by a pressure of from 10 to 15 lbs. more than for the gasoline burner. Before passing through the jets the kerosene is heated by passage through a coil of pipe above the burner. A pure Bunsen flame is secured, and there is practically neither smoke nor odor from the combustion. The floor or burner plate is a solid piece without the usual perforations. A water jacket encloses parts of the burner, which it is desired to keep moderately cool, and the water taken into the boiler circulates through this and becomes heated before entering the boiler.

To illustrate some of the advantages of using kerosene in steam vehicles, Captain Pearson tells of the excitement created in Millford among some automobilists when they saw Mr. Badger filling the gasoline tank of the Locomobile while puffing away at a pipe, and of being denied the privilege of putting up at a hotel and storing the machine in the stable until the proprietor was convinced that it was lamp oil instead of gasoline that the vehicle used. He also told of running out of fuel on a country road miles from any town and buying enough kerosene from a nearby farmer's wife to carry them to the next country store, where plenty more could be purchased.

A YOUTHFUL UNDERTAKING

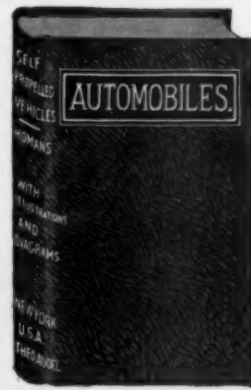
Two boys are making a trip from New York city to Chicago over the Albany-Buffalo-Cleveland route in a 700-lb., 4 h. p. Oldsmobile. One of them is James McConnell, the 14-year-old son of S. P. McConnell, vice-president of the Fuller Construction Co. and the other is George Garrett, a boy of 15 years, who has been employed for some time in the Oldsmobile station in New York. They left New York at 9:45 a. m. last Saturday and expected to average about 100 miles per day. The vehicle in which they are making the trip was given to young McConnell by his father three months ago, and since that time the lad has become expert in its operation and care.

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FOR SALE—One 1902 Winton delivered May 1st. Has eighty-dollar dos-a-dos seat, three large lamps, in beautiful condition. Guaranteed speed, 28 miles an hour. Price, \$1100.00. Owner wants Winton touring car. All statements guaranteed. Also 1 Waverley Runabout, perfect condition, \$400. Fisher Automobile Company, Indianapolis, Ind. \$5

FOR SALE—Cleveland tricycle \$100.00, cost \$350.00; Orient tricycle, water cooled head, 28 x 2½ G & J Tires, \$200.00, cost \$450.00; fine condition. Harry R. Geer, 1017 Pine St., St. Louis, Mo. \$5

POSITION as shop-superintendent in gasoline or steam manufactory by married man with good references. H. E. Barnhart, Warren, Pa. \$-19

WANTED—A-1 superintendent or foreman for machine and erecting departments of an established gasoline automobile factory. Must be quick and

have a thorough knowledge of gasoline machines. A man who has held similar positions preferred. Address, Middle-West, care Automobile and Motor Review.

WANTED—A Haynes-Apperson or an Autocar, 1902 model. Will pay a reasonable price for a machine in first-class condition. Address "Automobile," Box D, Jersey City, N. J.

WANTED immediately, active partner with means to quadruple my present extensive business of operating and manufacturing motor captive balloons and hydrogen airships. Address with stamp and references, Carl E. Myers, "Balloon Farm," Frankfort, N. Y. \$5

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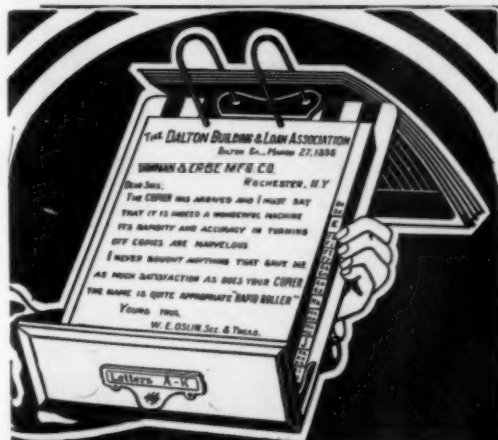
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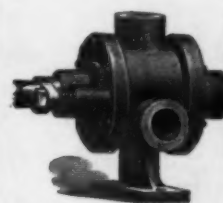


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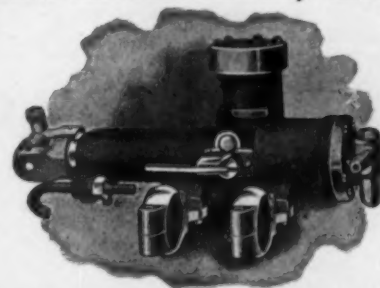
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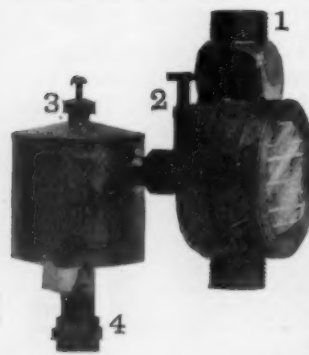


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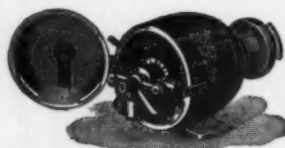
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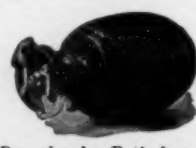
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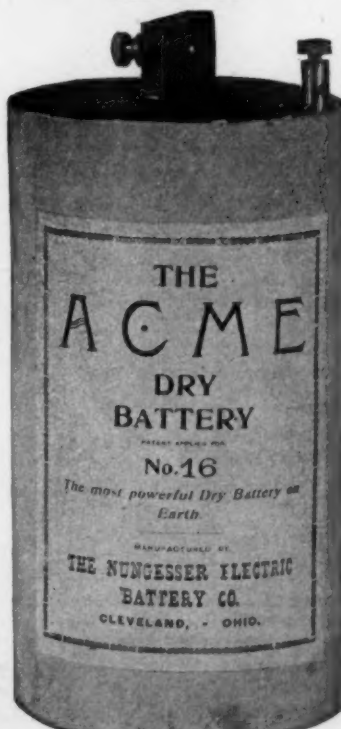
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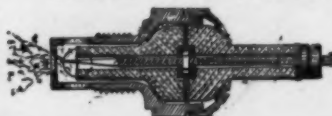
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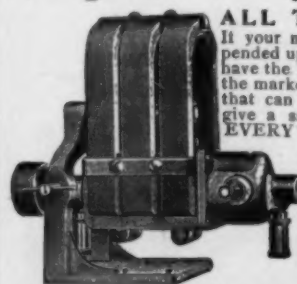


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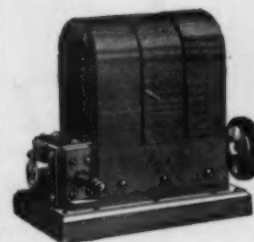
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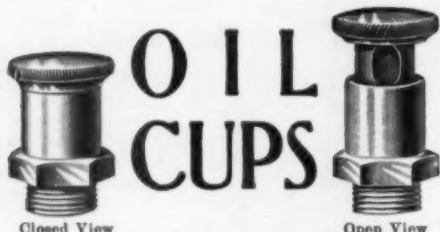


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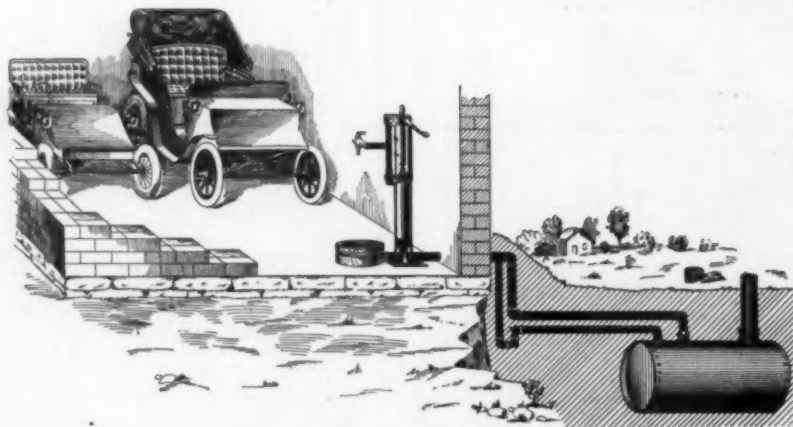
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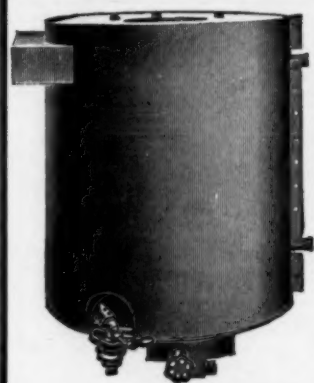
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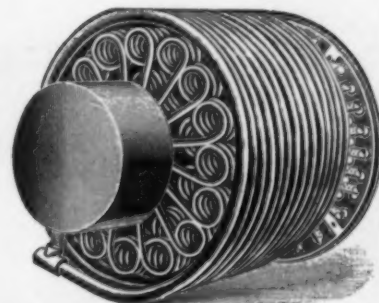


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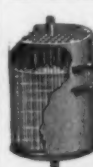
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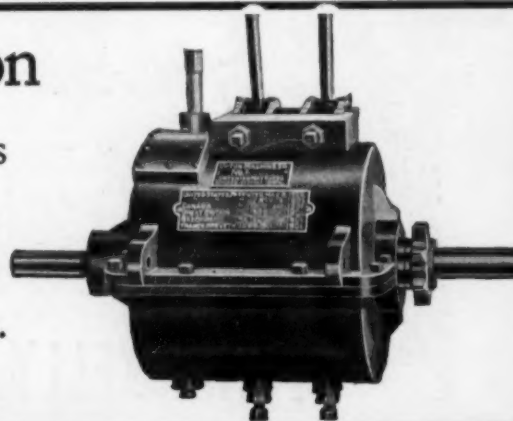
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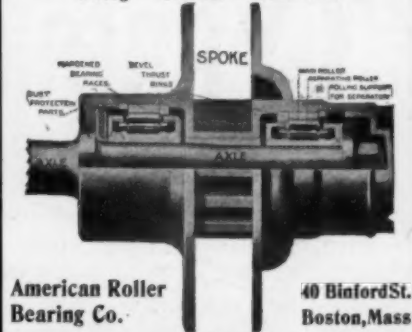
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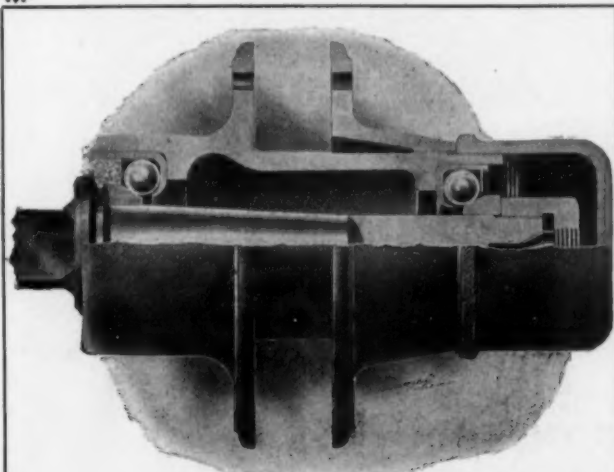
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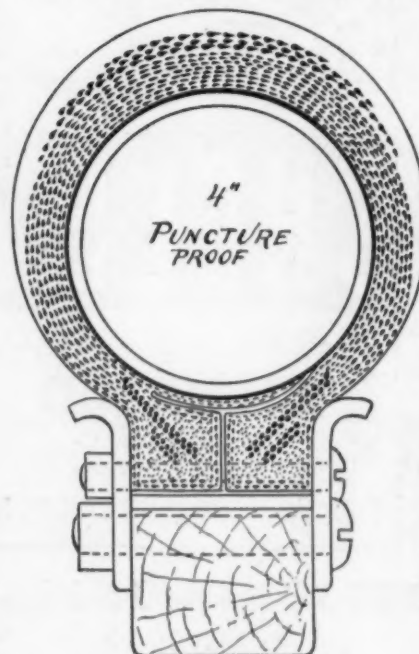


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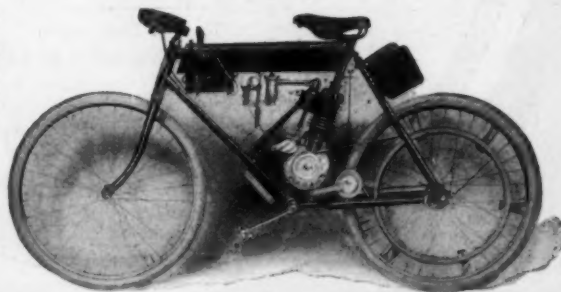
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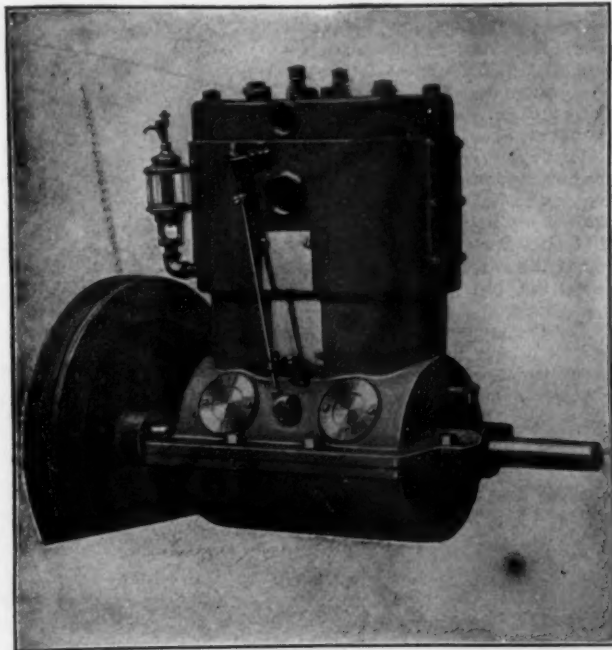
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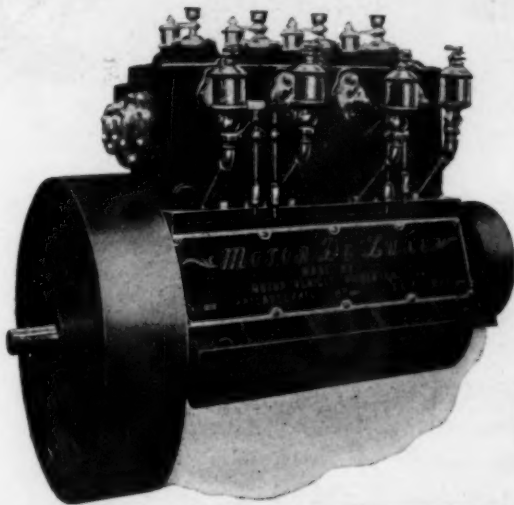
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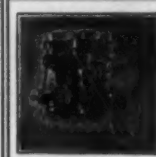
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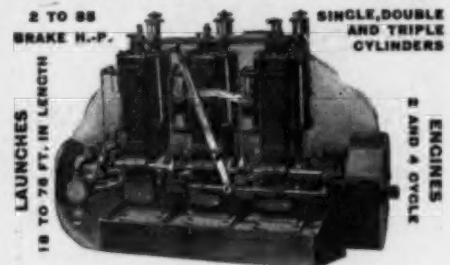
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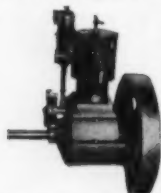
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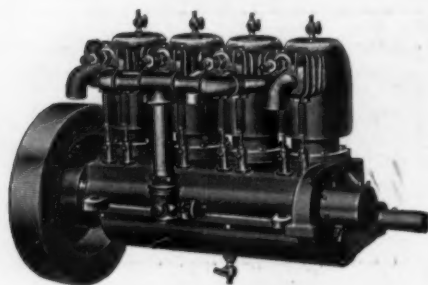
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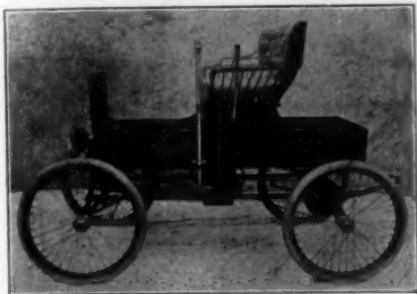
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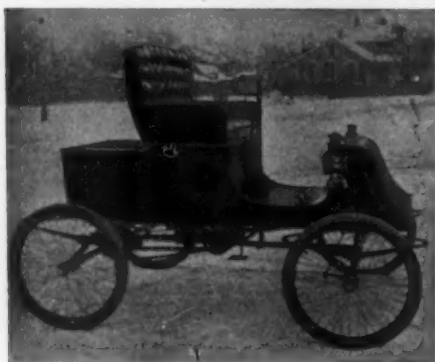
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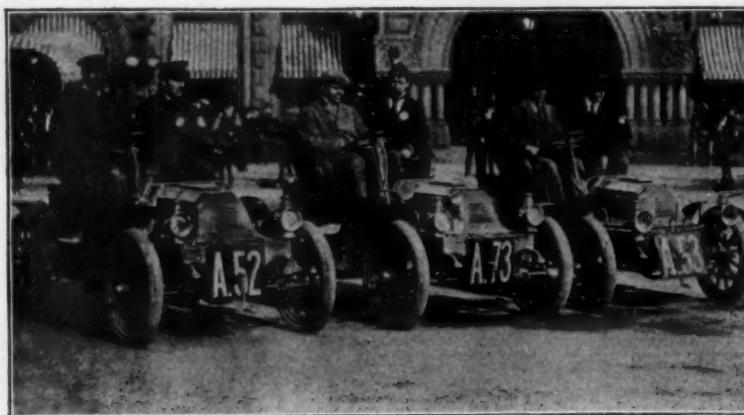


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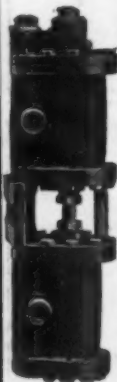
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See account Long Island Endurance Run,
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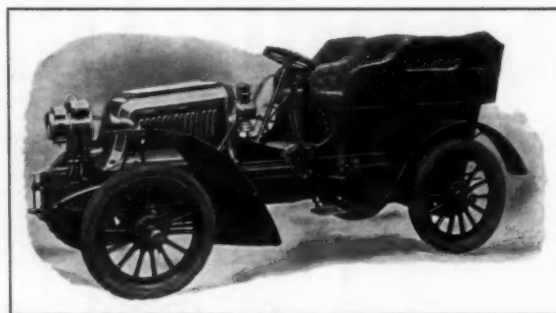
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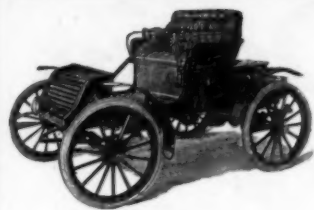
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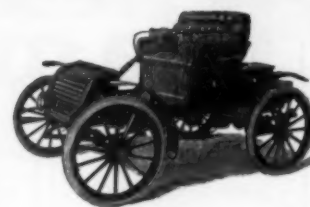
Automobile Company of America

Factory and Offices

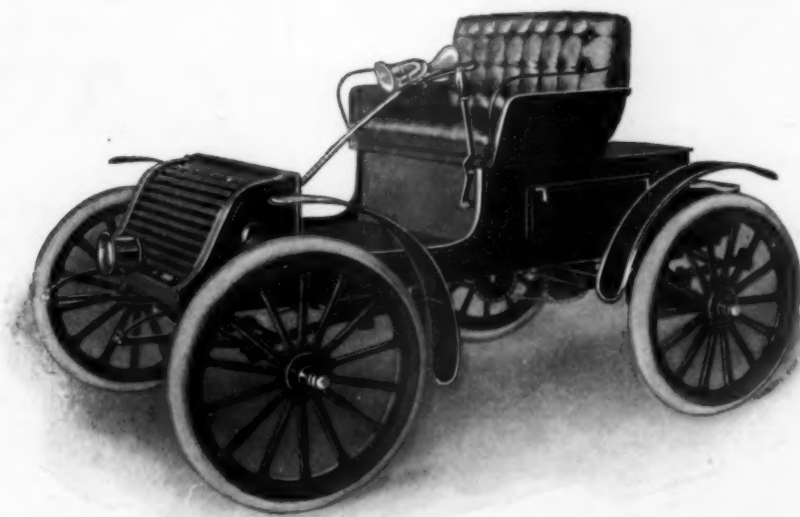
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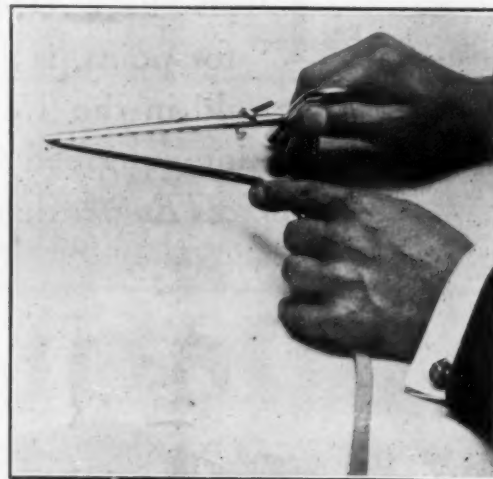
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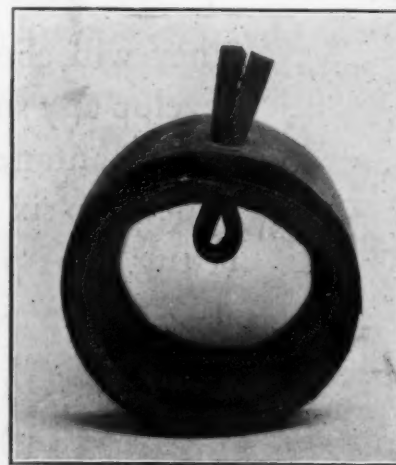
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